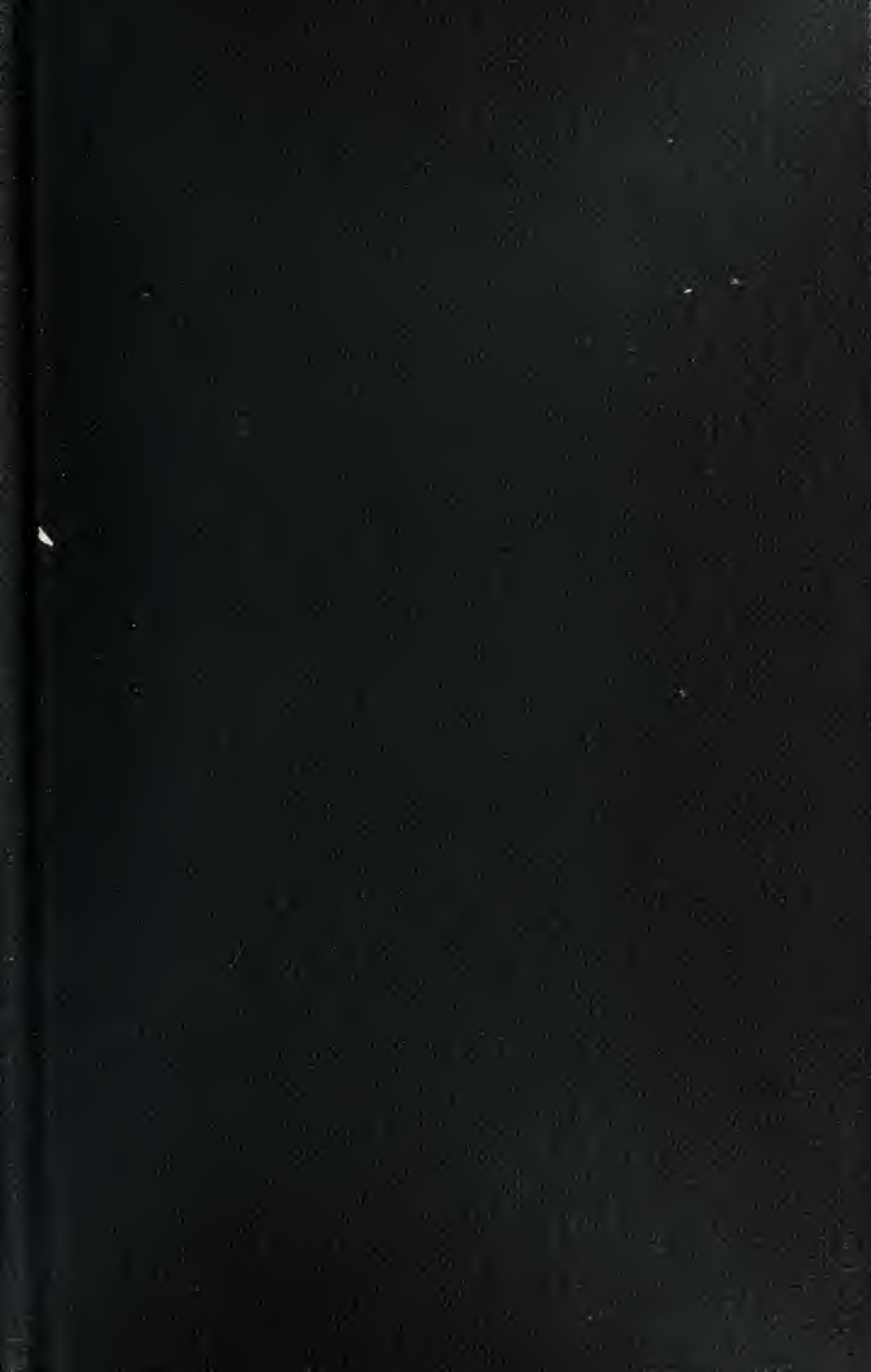




THE

AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN

EDITED BY

BROOKS H. WELLS, M.D.,

*Adjunct Professor of Gynecology, New York Polyclinic; Fellow of the New York
Academy of Medicine, the New York Obstetrical Society, etc.*

VOLUME XXXV.

JANUARY-JUNE, 1897.

NEW YORK

WILLIAM WOOD & COMPANY

94861
15/2/89

CONTRIBUTORS TO VOLUME XXXV.

ABRAHAMS, R., New York, N. Y.
ALLEN, DUDLEY P., Cleveland, O.
BALDY, J. M., Philadelphia, Pa.
BALLANTYNE, J. W., Edinburgh, Scotland.
BENNETT, J. H., Boyne City, Mich.
BETTMANN, HENRY W., Cincinnati, O.
BOISE, EUGENE, Grand Rapids, Mich.
BOLDT, H. J., New York, N. Y.
BROTHERS, ABRAM, New York, N. Y.
CARR, WILLIAM P., Washington, D. C.
CHENEY, B. AUSTIN, New Haven, Conn.
CLARK, J. A., Chicago, Ill.
CLARK, J. G., Baltimore, Md.
CORSON, EUGENE R., Savannah, Ga.
CUTHBERT, MIDDLETON F., Washington, D. C.
DA COSTA, JOHN C., Philadelphia, Pa.
DAVIS, EDWARD P., Philadelphia, Pa.
DUNN, B. SHERWOOD, Los Angeles, Cal.
FISH, E. F., Milwaukee, Wis.
FOX, GEORGE HENRY, New York, N. Y.
FRY, HENRY D., Washington, D. C.
GARDNER, WILLIAM S., Baltimore, Md.
HARRISON, GEORGE BYRD, Washington, D. C.
HIRST, BARTON COOKE, Philadelphia, Pa.
HOBBS, A. T., London, Ont.
ILL, CHARLES L., Newark, N. J.
LEWIS, HENRY F., Chicago, Ill.
MCCLANAHAN, H. M., Omaha, Neb.
McCONE, JAMES, San Francisco, Cal.
MALL, FRANKLIN P., Baltimore, Md.
MERIWETHER, F. T., Asheville, N. C.
MILLER, AARON B., Syracuse, N. Y.

- MORRIS, ROBERT T., New York, N. Y.
MUNDÉ, PAUL F., New York, N. Y.
NOBLE, CHARLES P., Philadelphia, Pa.
NORRIS, RICHARD C., Philadelphia, Pa.
POWELL, H. H., Cleveland, O.
PRYOR, W. R., New York, N. Y.
QUILLIAN, D. D., Athens, Ga.
ROSENBERG, JULIUS, New York, N. Y.
ROSS, JAMES F. W., Toronto, Can.
RUSSELL, W. W., Baltimore, Md.
SCHROEDER, A. RAYMOND, New York, N. Y.
SELLMAN, WILLIAM A. B., Baltimore, Md.
SHOBER, JOHN B., Philadelphia, Pa.
SHOEMAKER, GEORGE ERETY, Philadelphia, Pa.
SKELTON, L. L., Chicago, Ill.
SKENE, ALEXANDER J. C., Brooklyn, N. Y.
SMITH, A. LAPTHORN, Montreal, Can.
STERN, ARTHUR, Elizabeth, N. J.
STEWART, ROBERT W., Cincinnati, O.
STOKES, J. ERNEST, Baltimore, Md.
THOMSON, JOHN, Edinburgh, Scotland.
TOMPKINS, E. L., Washington, D. C.
VAN RENSSELAER, JOHN, Washington, D. C.
WELLS, BROOKS H., New York, N. Y.
WILSON, W. REYNOLDS, Philadelphia, Pa.
THE AMERICAN GYNECOLOGICAL SOCIETY.
THE CINCINNATI OBSTETRICAL SOCIETY.
THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.
THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTI-
MORE.
THE OBSTETRICAL SOCIETY OF LONDON.
THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SO-
CIETY.

THE AMERICAN JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. XXXVI. JANUARY, 1897.

No. 1.

ORIGINAL COMMUNICATIONS.

PUERPERAL MALARIAL FEVER.

BY

HENRY D. FRY, M.D.,

Professor of Obstetrics, Medical Department of Georgetown University; Physician in charge of Obstetrical Department of Garfield Hospital; Obstetrician to Columbia Lying-in Hospital, etc.,
Washington, D. C.

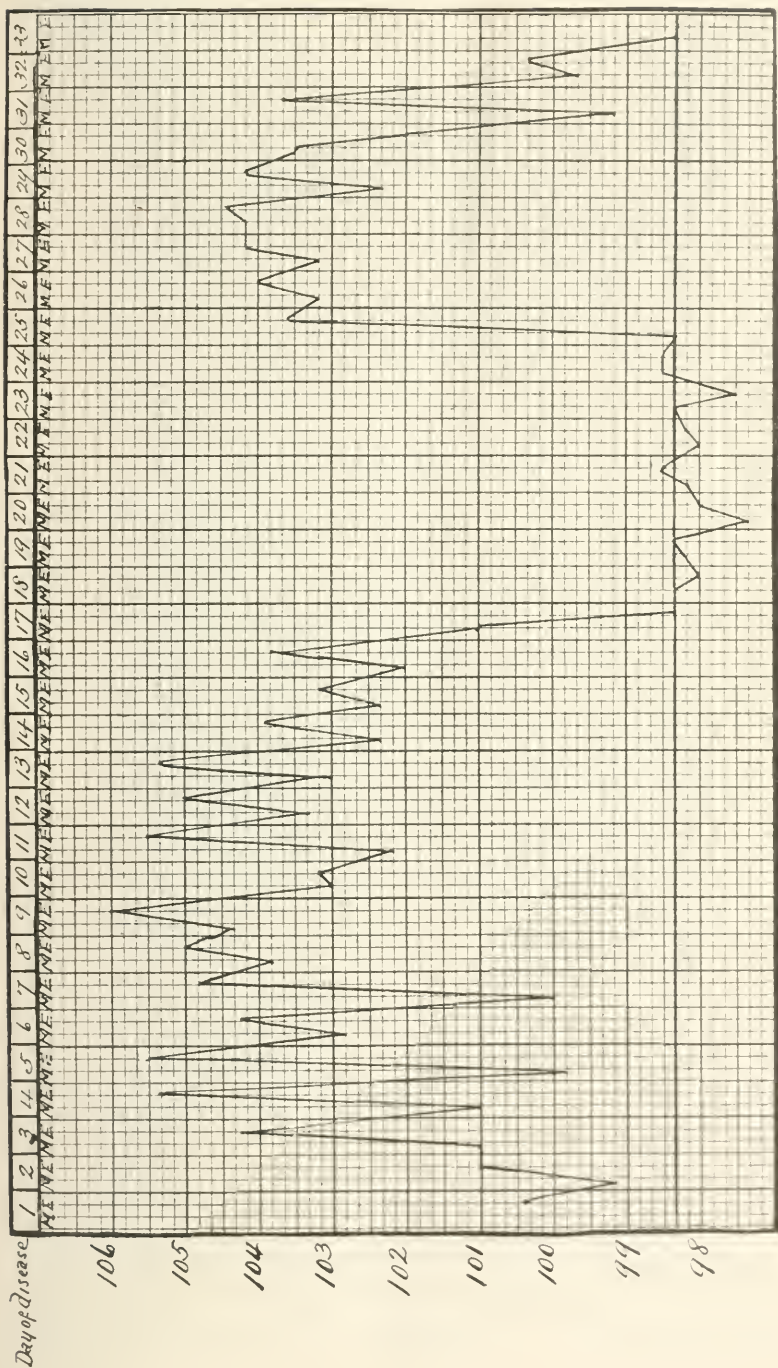
(With chart.)

UNDER this term I wish to describe a fever, of greater or less severity, of a continuous character, beginning soon after childbirth, and due to malarial intoxication. At once the difficulty appears of differentiating such a fever from ordinary puerperal sepsis. The danger of the error that might result has been kept carefully in mind and has, for some time, delayed my purpose of calling attention to the subject. It is far safer to treat malarial fever for septic than *vice versa*, and my fear has been that more harm than good might come from a paper directing particular attention to malarial fever complicating the puerperium. The occurrence of a severe case of the disease which caused me the greatest anxiety, and others seen in consultation more recently, have finally led me to brave the

dangers, hoping to offset them by calling attention to the careful differentiation of the two affections.

It is well known that pregnancy offers a certain immunity against the outbreak of malarial manifestations. On the other hand, the conditions existing after childbirth awaken the dormant properties of the poison. Fortunately the milder types of the disease are met with—periodical neuralgia, or fever, either intermittent in character or with marked exacerbations, having distinctive periodicity. I have observed not a small number of such cases in my hospital and private practice, but all have yielded to the free administration of quinine. During the present year eighteen per cent of the women delivered at Columbia Lying-in Hospital developed intermittent fever after childbirth. Passing over the milder and more characteristic manifestations of malarial poisoning to the graver and less distinct form of the disease occurring during the puerperal period, I will first briefly report the following case:

Mrs. X., a primipara, was delivered by forceps December 24th, 1894, after a tedious labor. She gave a history of having contracted malaria in September, 1893, while visiting in Massachusetts. The disease was of an intermittent type and promptly yielded to treatment. Again in June, 1894, she had a recurrence. She was pregnant, and the affection failed to respond to treatment so readily. The attacks were of the tertian form and persistently recurred until the latter part of September. From this time until confinement she was in excellent health. On the morning after delivery the temperature was 99.2° ; in the evening, 101° . The highest rise during the next day was 104.3° , at 4 P.M., and the following day, at 7 P.M., it reached 105.4° ; the next morning it came down to 99.8° . In the meantime the patient had been actively treated for puerperal sepsis, although there were no indications pointing to that condition other than the existence of fever. Intrauterine irrigations were administered every three hours, the vagina kept clean, and lacerations cauterized, and dusted with iodoform powder after each irrigation. There was no odor to the lochia, no sensitiveness about the pelvic organs, the uterus was undergoing involution, and the expression of the patient contraindicated a septic condition. Quinine was given in four-grain doses, increased on the second day to eight grains, and later to ten grains at a dose. The patient was very sensitive to the effect of the drug, and profound cinchonism limited pushing it further. After the fourth day the intrauterine irrigations were



Case of Mrs. N.

discontinued, as they produced no apparent effect upon the fever. At this time the blood was examined by a competent microscopist, who reported undoubted evidence of malarial poisoning. On the sixth day, when the temperature had dropped to 100° —a lower point than for some time—fifteen grains of tartrate of urea and quinine were administered hypodermatically, and followed by forty grains of the sulphate by mouth during the succeeding night. The following day thirty grains were given from 8 A.M. to 2 P.M. No impression upon the fever resulted. On the seventh day three intrauterine douches were given, but discontinued again as no good effect was apparent. The fever was continuous, and on the ninth day reached its highest point, 106° (see chart). Blood examination made by another microscopist confirmed the result of the first examination. Microscopical examination of the uterine secretion was negative. On the twelfth day of the puerperium the uterus measured three and three-eighths inches. The patient now presented a serious condition. The continuous high temperature was telling severely on her strength. She was delirious, her tongue was dry and coated, and she presented the symptoms of a low typhoid state. Arsenic, cold sponge baths, milk, beef juice, and whiskey completed the treatment. The application of the ice cap and the hypodermatic use of morphia acted well in quieting the excited nervous state. The bowels were inclined to be constipated, and calomel triturations, sulphate of magnesia, or enemata were used to overcome it. On the evening of the fifteenth day the temperature registered 103.8° . The next morning it was normal, and remained practically so for seven days. The patient recovered rapidly and was sitting up, when, on the afternoon of the eighth day of convalescence, the temperature suddenly shot up to 103.7° . For the next three days it remained between 103.2° and 104.5° ; it then gradually abated and became normal after the seventh day. The patient experienced no further trouble and was completely restored to health, although annoyed for some months by deafness and tinnitus aurium. She has since been confined again and without complications.

The following additional cases have more recently come under my observation and will be briefly referred to.

Dr. Henderson Suter delivered Mrs. S. of her second child May 16th, 1895. Fever developed on the third day after childbirth and continued daily thereafter, with evening exacerbations reaching 105° . Intrauterine and vaginal douches were

administered daily. I saw the patient in consultation June 6th, the eighteenth day of fever. I removed with the dull curette a small quantity of decidual tissue, but there was no odor or sign of uterine infection. The uterus was then washed out with a two per cent carbolic acid solution and packed with iodoform gauze. The immediate effect of the manipulation was to increase the fever. I saw her two days later and there was no improvement in her symptoms. The continuous fever, the absence of indications of septic infection, and the general appearance of the patient led me to advise the free exhibition of quinine, and immediately the temperature fell to normal. For the next three weeks the drug was given daily, and less than thirty grains failed to prevent temporary excursions of temperature.

On October 8th, 1895, I was called in consultation to see Mrs. D. Dr. W. S. Dixon, who had charge of the case, kindly furnished me with the following history: October 2d patient had a chill, followed by the usual symptoms of malarial fever, the temperature running up to 105° . On October 6th the temperature was normal and remained so for twenty-four hours. "Labor then took place, and was remarkable only for its brevity. . . . The day after childbirth the fever returned, preceded by slight rigor. I do not remember the date you saw the patient, but temperature was still very high and the malady more resembled a remittent fever." At the time of my visit the fever was 105° . A careful local examination failing to show any cause for the condition, Dr. Dixon, at my suggestion, had a specimen of her blood examined the same afternoon, and the presence of the plasmodium was detected. Quinia in full doses brought the temperature to normal the next day. Two hundred and thirty-five grains were given during the succeeding week, and the patient made a rapid convalescence.

On June 21st, 1896, I was called in consultation by Dr. H. J. Crosson to see a woman whom he had delivered five days before, and I am indebted to him for the following notes. Her early life had been spent in a malarious section of the city and she had suffered from chills and fever. In the summer of 1895 Dr. Crosson had attended her for an attack of intermittent fever of the tertian type. She had given birth to three children. On June 16th, 1896, she was taken in labor at the eighth month of pregnancy. The first stage was tedious, lasting twenty-four hours, and the birth was terminated by forceps at the outlet. Fever developed on June 18th, and vaginal and uterine douches were administered. On June 22d I curetted

the uterus with negative result. On the 23d and 24th local antiseptic treatment failed to influence the fever. Suspecting a malarial complication, quinine was ordered and the temperature was reduced to normal in four days. Dr. Crosson reports that "the amount of quinine given was about forty grains daily for two weeks, and at no time did she seem profoundly cinchonized."

During the last month I have had under my care three cases of puerperal malarial fever. One occurred at Columbia Hospital and the temperature reached 104° the day after labor. Full doses of quinine brought it down to normal after the third day, and convalescence was uninterrupted.

The second case was briefly as follows: Mrs. S., primipara, was confined September 10th, 1896. The patient had passed the summer in Virginia, near Leesburg, and several members of the household have suffered from malaria. She herself had periodical headaches, which were cured by quinine. During the last month of pregnancy she suffered from edema of hands and feet, shortness of breath, and palpitation due to cardiac weakness. The urinary analysis had been, and continued to be, satisfactory. Rest was enjoined, stair-climbing proscribed, and strophanthus administered. Her labor progressed satisfactorily, child in L. O. A. position, until the head reached the perineum. Voluntary expulsive efforts produced cardiac distress in spite of the careful administration of ether. The pulse became intermittent and breathing labored. Fearing serious heart exhaustion, the labor was terminated by forceps. Patient did well until the twelfth day. That morning the temperature was normal; in the evening it was 100.4° . A purgative was ordered, diet restricted to liquids, and vaginal douches ordered of carbolic acid solution. The next day, September 22d, temperature at 9 A.M. 101.2° ; 6 P.M., 102° . Local examination failed to disclose any condition to account for the fever. Involution had progressed nicely and the discharges were normal. Nevertheless, fearing the existence of sepsis, two intrauterine douches of carbolic acid solution were given, and the return fluid came away clear. September 23d: 9 A.M., temperature 100.4° ; another intrauterine douche given with negative result. At 6 P.M. temperature reached 103.6° in the axilla. Blood examination negative. Quinine administered with the following effect: At 11 P.M., temperature 103.8° , twelve grains quinine; at 3 A.M., 101.8° , twelve grains quinine; at 7 A.M., 100.4° , twelve grains quinine; at 1 P.M., 99.2° , twelve grains quinine;

at 7 P.M., 98°, twelve grains quinine. Sixty grains of quinine were administered in twenty hours. Cardiac stimulants were necessary to counteract the depressing action of the drug. Eight-grain doses three times a day were ordered, but proved insufficient, as the fever returned the next evening. It reached 101°, and another blood examination made at this time revealed the malarial organism in embryonic form. Eight grains every four hours prevented a recurrence of fever, and the patient made a good convalescence.

The last case which was recently under my care is of particular interest as bearing upon the subject of diagnosis, since it was apparently one of mixed infection—that is, of septic and malarial poisoning combined. Mrs. B. was six months advanced in her first pregnancy when she commenced to discharge, without cause, what later proved to be liquor amnii. Uterine action not coming on, she was kept in bed with the hope that she was suffering from endometritis decidua catarrhalis. On the eighth day, however, labor pains set in. Examination revealed the following condition: Liquor amnii evacuated and the uterus tightly contracted on its contents; the fetus presenting by its left shoulder, head in left iliac fossa and extremities in front; the cervix not effaced, and dilatation only sufficient to insert one finger. Labor pains continued during the day with little effect. At 7 P.M. about four inches of the funis had escaped into the vagina and its pulsations were feeble. At 10 o'clock the patient was etherized, the cervix dilated manually as large as a silver dollar, and the cord was replaced. The edge of the placenta was detected low down on the left side. The uterus was contracted so firmly on the fetus I was unable at this time to produce version. The pains were much increased until 3 A.M., when they ceased. Anesthesia was again induced, and dilatation had now progressed so that I readily succeeded in bringing down a foot. The labor was terminated by uterine action and the placenta promptly expelled. Patient did well until the third day, when her temperature went up to 103°. The lochia were very free and of a sero-sanguineous character, with decided odor of putrefaction. Lacerations at the cervix and fourchette were cauterized with equal parts of iodine and carbolic acid, and intrauterine and vaginal douches of antiseptic solutions were commenced at once and kept up regularly for eight days. The local condition began promptly to improve; the return fluid bringing fewer shreds, the odor of the lochia disappeared in two or three days, and it

changed to a mucu-purulent and then mucous discharge. At first the fever improved with the improvement of the local condition, coming down in a few days to 99.4° . Finally, when the septic endometritis seemed entirely overcome, the fever pursued an erratic course, running between $99\frac{1}{2}^{\circ}$ and $102\frac{1}{2}^{\circ}$. Chilly sensations were felt, and on the evening of the tenth day a distinct rigor occurred, followed by high fever and sweat in quick succession. There was no indication of pus formation or any condition to account for the paroxysm. Quinine was given and the temperature promptly fell to normal, and patient recovered without further delay. An effort was made to obtain a blood examination, but the specimens were unsatisfactory.

The reasons for considering that septic and malarial poisoning coexisted were: The difficulties of the labor and the necessary interference were such as to invite sepsis, although every precaution was exercised to prevent it. The fever, fetid lochia, and endometritis pointed to the existence of infection. By prompt and vigorous antiseptic treatment the local condition was corrected, as evidenced by the subsidence of fetid lochia and disappearance of shreds from the return fluid during irrigation. At first the temperature fell with the improvement of the local condition; then, without apparent cause, chilly sensations and erratic temperature rises were manifested. Finally a distinct paroxysm of chill, fever, and sweat occurred. That these latter symptoms were not due to extended infection or pus formation is proved by the immediate cessation of all symptoms and entire recovery of the patient after the administration of quinine.

The differential diagnosis between puerperal malarial fever and puerperal septic fever is of vital importance. The vast majority of all fever cases following childbirth is of septic character, and the great danger lies in overlooking the true cause and losing valuable time by neglect of proper local treatment. The diagnosis of malarial fever appeals strongly to the conscience of the attending physician, and it is very comforting to him to reach that conclusion, since the public is so well informed at present that the occurrence of puerperal fever carries with it an unenviable sense of responsibility. The safest course to pursue is to treat all cases of fever during the early puerperium as septic until proved to be otherwise. If the diagnosis will prove to have been incorrect no harm will have resulted from careful antiseptic local treatment. In arriving at a diagnosis the previous history of the patient and the

history of her confinement will help to throw some light on the subject. If it be ascertained that the patient had resided in a malarious section, and particularly if investigation reveals that she has been subject to attacks of intermittent fever, the possibility of a malarial complication is increased. The cases I have met with of mild and severe types of the disease emphasize the value of this observation. Also the history of a normal confinement, conducted according to strict antiseptic rules, followed by fever, would tend to confirm the same diagnosis. On the other hand, a case presenting a negative history regarding malarial exposure and no evidence of previous attacks of the disease would assist in excluding that complication, and the likelihood of sepsis would be further increased if there were a history of difficult or instrumental delivery, of adherent placenta, or of the birth of a macerated fetus.

So much for the previous history of the case. Now, to come down to the main question at issue, let us imagine ourselves face to face with a woman recently delivered and having a fever continuous in character and of doubtful etiology. Carrying out the suggestion I have already made, we will at once begin to treat her under the supposition that she is septic. The diet will be regulated and the bowels unloaded. A careful local examination will be made with the view of discovering any lacerations that may permit the entrance of poison, and if found these will be cauterized. Bimanual examination will reveal the progress of involution, the state of mobility of the uterus, and the presence or absence of inflammatory exudates and adhesions. Supposing this information to be negative, we next examine the character of the lochial secretion. Finding this normal and free from odor, we accept at least the evidence of absence of putrefactive germs and decomposing débris. The condition of the interior of the uterus may be interrogated by the dull curette, followed by antiseptic irrigation and iodoform gauze packing. So far our information is entirely negative, and if active treatment be further demanded until the true character of the attack be ascertained, repeated intrauterine irrigation with hot antiseptic solutions should be carried out. Failure to produce any impression upon the fever would add still further to the negative evidence.

Some assistance in making a diagnosis may be obtained by the attention to the development and course of the febrile disturbance. Septic fever usually begins from the third to the fifth day. Malarial fever has no regular time for its appear-

ance. It may follow the physiological rise of temperature immediately after childbirth, it may commence in twenty-four or thirty-six hours later, or it may be postponed until the second week of the puerperium. In puerperal malarial fever the temperature quickly reaches a high point, 104° or 105° ; it is subject to remissions, but as a rule it pursues a higher range than septic fever.

A valuable diagnostic sign is the appearance of the patient. There is an absence of the peculiar pinched and anxious expression of the countenance which is so common in septic fever. The difference is marked even between a case of mild septic and one of severe malarial fever. Dr. Richard C. Norris considers a proportionately low pulse rate to the temperature rise as a valuable diagnostic sign of malarial fever complicating the puerperium. In fever due to sepsis the pulse rate is relatively higher. Sensitiveness of the uterus is not uncommon in puerperal malarial fever and does not point necessarily to local infection.

Of positive evidence the greatest importance should be placed in the blood examinations. This means of differentiating malarial from septic fever is one of the most gratifying triumphs of modern science. The service of a competent microscopist should always be secured, and it is better to withhold the exhibition of quinine until the specimen of blood has been obtained. Failure to discover the plasmodium in some of its forms should not be accepted as evidence of its absence until repeated examinations have been made.

In the absence of facilities for making blood examinations, valuable aid in arriving at a diagnosis may be obtained by the administration of quinine. To secure the specific action of the drug in these cases it is necessary to give it in full doses. Fifteen grains three times a day will sometimes fail to make any impression. In two of the cases reported in this paper the course of the disease was uninterrupted by quinine and terminated only by self-limitation. This occurred in one of the cases, although profound cinchonism was kept up and the patient suffered from deafness and distressing noises in the ears for months after recovery from the fever. It is well to prescribe occasional doses of calomel during the administration of quinine.

The prophylactic treatment of puerperal malarial poisoning, whether manifested during pregnancy by periodical neuralgia or intermittent fever, is most important. Quinine and arsenic should be administered throughout the remaining period of utero-gestation.

INIENCEPHALUS.*

BY

HENRY F. LEWIS, A.B. HARV., M.D.,
Chicago, Ill.

(With twenty-eight illustrations. Dissections in Laboratory of Rush Medical College.)

SAINT-HILAIRE, in his classical and authoritative work on Teratology,¹ defines a monstrosity as a serious deviation from the specific type, complex, apparent on external view, and congenital. His classification of all varieties of anomalies and monstrosities has been followed by teratologists generally since his time. His first division is into single and double monsters. The single monsters may be capable of independent existence for longer or shorter time, or dependent entirely and necessarily

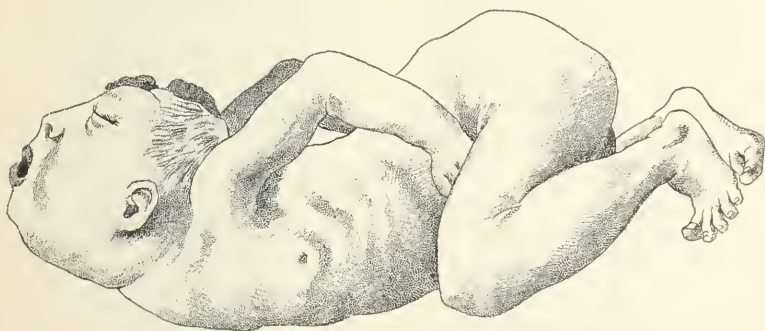
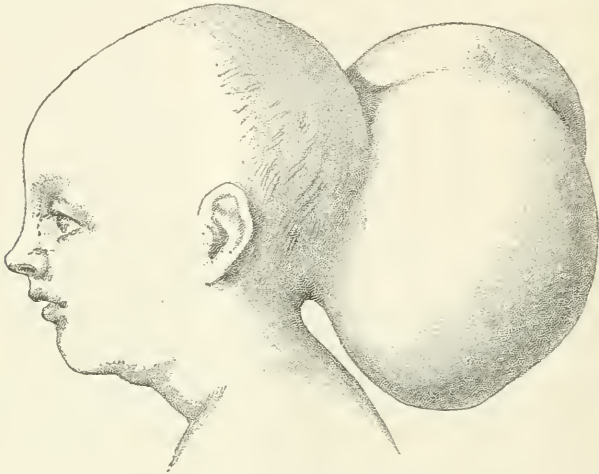


FIG. 1.—Anencephalus. Ahlfeld.

on the maternal tissues. A large family of monsters is characterized by a defect in the closure of the abdomen or thorax, or by defect in the closure of the cranial vertebral laminae. The latter allows many varieties, according as the defect is in the cranial bones, the spine, both cranial and spinal bones, or parts of each or both. In a large number the brain is entirely wanting or represented only by rudimentary tissue. These are the anencephali (Fig. 1), the most common of all—the so-called frog or owl fetuses, one or more examples of which fall within the

* Read before the Chicago Pathological Society, December 14th, 1896.

experience of nearly every practitioner. In pseudencephali and derencephali the brain is almost nothing but a mass of vascular tissue. In another class the brain is present, although the



2.—Notencephalus. Ahlfeld.

maldevelopment of the bones has caused all or part of it to lie outside the cranial cavity. Sometimes the posterior defect is

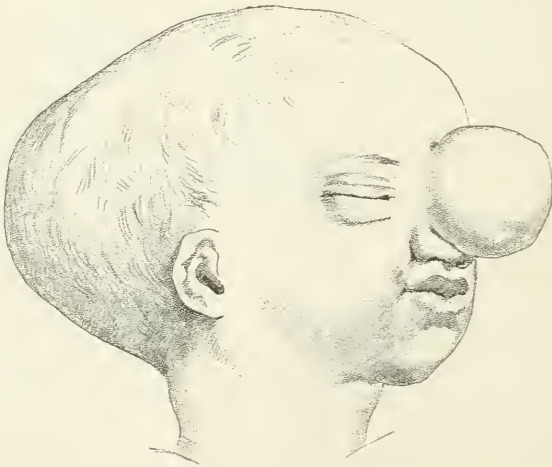


FIG. 3.—Proencephalus. Ahlfeld.

confined entirely or mostly to the vertebral laminae and we have the spina bifida cases, through the defect in which meningocele usually protrudes. The class in which the brain is

wholly or in part outside the cranium is the exencephalian class. This class is further divided according as there exists or not spinal fissure in addition. Those without spinal fissure are :

1. Notencephalus—where the cranial contents are in large part outside the skull, resting on the back of the neck like a



FIG. 4.—Podencephalus. Ahlfeld.



FIG. 5.—Hyperencephalus. Ahlfeld.

“waterfall,” but not adherent. The tumor protrudes through an opening in the occiput (Fig. 2).

2. Proencephalus—the hernial protrusion is anterior (Fig. 3).

3. Podencephalus—the cranial defect is in the vault (Fig. 4).

4. Hyperencephalus—the defect is similar to the last, but of such great extent that the cranial bones are merely rudimentary (Fig. 5).

Those with spinal fissure are :

1. Exencephalus proper—the cranial bones are rudimentary

and the brain lies almost entirely outside on the back. The spinal defect may involve a few or all of the vertebræ (Fig. 6).

2. Iniencephalus—the deformity is similar to that in notencephalus, with the addition of a more or less extensive fissure of the spine from the atlas down. In consequence of the ill development of the cervical vertebræ, there is a lordosis in this region and a compensatory kyphosis in the dorsal and lumbar regions, which extend the head and allow it to sink between the shoulders, thus shortening the length of the back, often to an incredible degree. The cranial bones, indeed, often close the vault above, because the head is so far tilted backward that the margins of the bony defect in the occiput are applied to the back along the margins of the defect in the vertebral laminæ.



FIG. 6.—Exencephalus. Förster.

Thus the portion of the brain that protrudes through the opening in the occiput lies not entirely in the outer world, but mostly upon the spinal cord beneath and almost or entirely covered above by the rudimentary squamous occipital plates and the parietals. This excessive backward tilting of the head exaggerates the shortening of the dorsum. Behind the parietals a meningocele or encephalocele may protrude on to the back.

Saint-Hilaire distinguishes iniencephalus and exencephalus proper thus : The former has the brain situated in great part within the cerebral box, and in part outside it, behind and a little below the cranium, which is open in the occipital portion. The latter has the brain situated mostly outside the cerebral box and behind the cranium, whose superior wall (the frontals and parietals) is more or less rudimentary.

Ballantyne² enumerates three cardinal characteristics of iniencephalus: occipital defect, spina bifida, and fetal retroflexion. In different specimens these three characteristics are exhibited in different degrees. As in every classification, there are found some specimens which do not fit well into any category. Especially difficult is it sometimes to distinguish between iniencephali and exencephali proper. The latter may have the retroflexion of iniencephalus, but also will have the most considerable portion of the brain outside in the form of an encephalocele. Some of the cases I shall describe are in this intermediate position and might be classed by different observers with either species. Taruffi³ groups notencephalus, iniencephalus, and exencephalus proper into one species, which he calls "mero-acrania postero-spinale."

Iniencephalus is a very rare form of monstrosity. Isidore Geoffroy Saint Hilaire,¹ writing in 1836, says that only three cases had at that time been published. Taruffi³ states, writing in 1889, that only about twenty-one cases had been reported of mero-acrania postero-spinale. Besides an extensive review of the previous literature, I have collected every case since Saint-Hilaire's time of which I can find reference, including all in the Index Catalogue of the Surgeon-General's Office, U. S. Army, and in the Index Medicus. To these I add one case delivered by myself and two in the Museum of Rush Medical College. These last two I have been permitted to dissect, with the kind assistance of Dr. Louis J. Mitchell, of Chicago, by the courtesy of Dr. Ludvig Hektoen, professor of morbid anatomy in Rush Medical College. Both of these gentlemen have my sincere thanks.

The cases recorded below divide themselves into three general classes. The first includes those without encephalocele, or protrusion of the brain beyond the box formed by the cranial bones and the open vertebræ. This class might be called *iniencephalus clausus*. The second includes those having a small encephalocele, and, with the first, comprises the typical iniencephalus. The third includes those cases where the occipital opening is large and allows the exit of a large encephalocele, but where the other characteristics of the species are so marked that there is no doubt as to the classification. The cases of these two classes might be called *iniencephalus apertus*.

Here follow the cases of the first class, where there is no encephalocele :

Iniencephalus Clausus.—I. Fleck's case ⁴ (Fig. 7). Ahlfeld⁵ gives an abstract and two pictures of this case, which is undoubtedly iniencephalus of the first variety. The fetus is female. There is tilting backward of the head, causing the face to look forward and foreshortening the back. The head is also turned somewhat toward the left. The anus appears up toward the back. There is no external tumor. There is complete spina bifida as far as the sacrum, fusion of the cervical vertebræ and a wide opening in the occiput, whose margins are attached to



FIG. 7.—Iniencephalus. Ahlfeld.

the transverse processes of the dorsal vertebræ for considerable distance. This case much resembles my own, except that there is less tilting back of the head and shortening of the back. (See p. 22, Fig. 9.)

II. Specimen in the museum of the Royal College of Surgeons of England.⁶ This is without clinical history or report of dissection. It is the only one except my own which is male. This is marked No. 278 and was presented by Mr. Jonas Hutchinson. The specimen is "the skull and vertebral column, with a portion of the ribs and pelvis, of a hydrocephalic

male fetus, with distortion of the vertebral column, defective development of the occipital bone, and defective closure of the vertebral canal behind." There is a wide rhachischisis of the cervical and first six dorsal vertebræ, and the head is so tilted backward that the margins of a large defect in the occiput, represented by a dilated foramen magnum, rest on the edges of the laminae of these vertebræ, to which they are ligamentously attached. There are two scale-like bones representing the supraoccipitals and bounding the large opening. The frontal and parietals are very large. There are only five cervical vertebræ, and their laminae are fused together. There is another spina bifida involving the lumbar and sacral regions, and there is talipes of both feet.

This is apparently a typical case of iniencephalus, but is unique from the coexistence of hydrocephalus. It will be noticed that most of the cases here reported have an opening behind the cranium, so that there is an exit in the posterior tumor for the excess of brain and meningeal fluid. In this case, having no such outlet for any possible dropsical effusion, it is easy to conceive that the hydraulic pressure from within the cranium might stretch the soft ossifying membranes of the calvarium. This is a point in favor of Dareste's²⁷ theory of the causation of exencephalians by the vascular changes due to the compression of the defective cephalic hood of the amnion. The stasis produced from this cause in the intracranial vessels would naturally engender dropsical conditions. The same defective development of the overlying amnion which would cause the shortening of the dorsum and the tilting back of the head could also cause the vascular changes in the cranium inducing the dropsy. (See p. 49.)

III. Coffin's case.⁸ Child about the eighth month, a span and a half long; head small; eyes prominent; nose flat; mouth open and not easily closed by pressure on lower jaw; flattened chest; scapulæ situated forward of lateral line; head tilted back, with face looking almost upward; posterior fontanelle communicates with an aperture in the skin through which brain matter oozed at birth; spine small and curved anteriorly; no coccyx, anus in position normally occupied by coccyx. External oblique attached to clavicle (showing the shortening of the body); cleft in soft palate; heart large, especially the right cavities; lungs small, but have contained air; kidneys large; brain normal except large olfactory lobes. The spine consists of three bones. Between the first and second is an

aperture leading into the cranial vault, and these two vertebræ are fused together. The posterior part of the occiput is wanting, and the vertebræ articulate with the basilar portion. Ribs articulate with these two bones, but in front with their fellows of the opposite side on account of the lack of a sternum. The third vertebra is the sacrum. The vagina opens where normally the anus should.

The next case, reported in the *Hahnemannian Monthly* in 1880, is somewhat vaguely recorded as to scientific facts, and, were it not for a good picture, it would be impossible to tell what sort of a monster it was.

IV. Yocum's case.⁹ This was a face presentation in which the forceps failed and delivery was only effected by vigorous traction after version. The mother died one hour after being delivered. Most of the article is devoted to an account of the labor and the condition of the mother, with speculation about possible maternal impressions. The picture, a copy of a photograph, shows a typical example of iniencephalus as far as external appearances. It appears that the fetus is at term. The head turns backward, reaching almost to the sacrum, and the face looks upward and forward. This tilting of the head gives an appearance of disproportionate size of that part. There is no external tumor, and the scalp is entirely covered with hair. Except in age of gestation, the case is similar to my own, and, except that the abdomen is closed, to No. 9. There is no external sign of a neck, and the furrow between chin and sternum is obliterated, probably by edema. No dissection of the monster is recorded, and the author refers to the picture for the description.

V. Landucci's case¹⁰ (Fig. 8). A primipara, 40 years old, pregnancy normal except for hydramnios, was delivered in the hospital of Arezzo of a dead female fetus nearly at term. The head appears large in proportion to the body; the cranial bones are very movable; the head is tilted backward, so that the face looks forward, and yet the chin rests as if adherent to the sternum, thus causing the ears to appear just above the shoulders and the head to sink between the latter; the face is narrow in proportion to the rest of the cranium. The thorax is short and cylindrical, and runs into a smaller but distended abdomen; the fatness of the skin obscures view of the ribs; the belly falls over the pubes; an umbilical sac four and a half centimetres wide protrudes from this and contains coils of intestine; below this hernia is a piece of normal umbilical cord with a ligature;

the thighs are attached high ; the pelvis is tilted backward, thus, with the tilting backward of the head, very much foreshortening the back ; the anus lies upon the back a few centimetres behind the scalp.

The frontal suture is ossified ; the parietals cover a large part of the back of the fetus, and extend to the spinal column except for the intervention of the narrow pieces of the occiput which



FIG. 8.—Iniencephalus. Landucci's case. Diagrammatic sagittal section.

are attached to the spine at the eleventh and twelfth dorsal vertebræ ; the spinal column is open to the last dorsal vertebra, but covered by the overlying cranium ; a deep sulcus extends into the basilar portion of the occiput and contains the medulla ; the cervical vertebræ turn forward and upward, so that the lower ones are found beneath the lower jaw ; the column turns back in the dorsal region ; the lumbar vertebræ are

better developed and each is complete, but there is a small spina bifida involving the last two lumbar and first sacral vertebræ: the bodies of the first nineteen vertebræ are fused; the ribs are irregular in shape, and partly fused owing to the great curvature of the dorsal spine. Except that one kidney is twice as large as its fellow, the rest of the viscera are normal.

The next two cases were shown by Ballantyne, the editor of *Teratologia*, at a meeting of the Edinburgh Obstetrical Society, and reported in his journal in 1895. They are typical iniencephali, the second showing to a major degree the three leading characteristics of this form of monster—namely, occipital defect, fetal reflexion, and spina bifida.

VI. Mother,¹¹ aged 31 years, always healthy; had her first child affected with spina bifida, then two normal children, and then the monster described. The mother's mother had had twins twice and the father's mother once. There was a great distension of the abdomen and a gush of six or eight quarts of water when the membranes broke. The presentation was foot, and extraction was difficult by traction.

The still-born fetus was a female measuring 30 centimetres long and 19 centimetres from vertex to perineum; occipito-frontal diameter is 11 centimetres, occipito-mental 13 centimetres; the whole head is sharply flexed backward, so that the face looks upward and the occiput reaches to the lumbar region. There is no neck: the abdomen and thorax are prominent; the vulva and anus are patent. The occiput is encroached upon by a very large foramen magnum, through which part of the brain passes to lie in a sort of cavity formed by the curvature of the spinal column. On account of the retroflexion of the latter the visceral organs are distorted and displaced. Several vertebræ are absent from the spine.

VII.² There is no clinical history. The fetus is female: the length is 28 centimetres; head and trunk, 13.5 centimetres; occiput to anus, 5 centimetres; the head and trunk are fused into practically one mass without semblance of a neck; the face looks directly upward, and the head is so strongly turned back that the skin over the cranium is directly continuous with that over the coccyx. There are no external signs of rhachischisis.

A medium sagittal frozen section was made. An extraordinary distortion of the vertebral column is evident: the cervical spine lies nearly in the centre of the mass formed by the head and trunk; from this point the column passes downward and forward for a short distance, and then turns backward and down-

ward to traverse the body of the fetus and end near the skin just above the anus. The spinal canal is open throughout, but, on account of the extreme retroflexion, a cavity is formed between the occiput and the cervical vertebræ which may be called the occipital spinal cavity. This cavity communicates freely with the interior of the cranium through the large defect in the squamous portion of the occiput. The organs of the thorax and abdomen are pressed downward and forward. A postero-median opening in the diaphragm allows the spleen and intestines to lie in the thoracic cavity.

I next report a case occurring in my own practice in March, 1895. The monster was one of uniovular twins, of which the fellow was a normal specimen of a fetus of five and a half months of gestation. I showed this specimen to the Chicago Medical Society.

VIII. The mother is a primipara, aged 25 years, and married about six months; the last menses occurred October 10th, 1894, and fetal movements were first felt March 1st, 1895. The previous health and family history are negative. She had worked a little harder than usual at her sewing machine and domestic duties a few days before pains began.

Examination showed an abdomen enlarged to about five or six months of pregnancy; a hard mass was felt to the right of the navel and small parts in the lower part of the abdomen; the vagina was occupied by a bag of waters containing feet. This bag broke in two hours, freeing a moderate quantity of fluid and revealing a second bag high in the vagina. Three hands and two feet were felt presenting. Later a head pushed forward and a living male child of about half the size of full term was born. This child was normal in appearance and lived for twenty hours in an incubator. The feet of the second fetus were seen protruding from the vulva, and the fetus was easily removed, as well as the common placenta and the membranes. The second child, about half as large as the first, was dead and somewhat macerated. This was the monstrosity.

The common placenta, with a common chorion, two amnia and two cords, weighed 230 grammes. The first child is 10 inches long; weighs 590 grammes; has finger and toenails about half-way out to the ends of the digits, and undescended testes. Dissection shows nothing abnormal. The second fetus is 8½ inches long; weighs 190 grammes. Both the children are males, and both amniotic cavities contain the usual amount of fluid.

The monster presents the appearance of great shortening of the back. From the back of the head to the anus is only three-quarters of an inch. The arms and legs seem unduly lengthy and hang parallel. The face looks forward and upward, while the cranium is turned sharply backward, covering most of the dorsum. The neck is edematous and presents no depression between the chin and thorax. The abdomen is protuberant to a marked degree. There is no harelip, cleft palate, club-foot, or external fissure observable (Fig. 9).



FIG. 9.

An incision is made in the median line from the forehead to near the anus, and the skin deflected on either side (Fig. 10). The parietal bones are seen to overlies the upper two-thirds of the spinal column and are closely connected therewith. Cutting these fibrinous attachments on either side and turning the head forward reveals an extensive spina bifida from the upper end to the second lumbar vertebra. The brain is so soft that it is impossible to make out the structures lying directly under the region of the occiput, but the spinal

cord is seen lying at the bottom of the spinal canal and extending into the sacrum as the cauda equina. All the cranial bones appear normal except the occiput. The basilar portion articulates with the atlas, but the bone broadens out so as to leave a large foramen magnum. This opening is continuous with a large defect between the squamous portions, forming with the latter opening the lower circle of a figure 8. The squamous plates of the occiput are represented only by an acute triangle on either side of the opening, articulating anteriorly with the



FIG. 10.

parietals. The margins of the bony defect in the occiput are closely attached to the ends of the widely divergent laminae of the cervical, dorsal, and first lumbar vertebrae. Thus it will be seen that the spinal canal is covered above by the triangular plates of the occiput and the parietal bones, which form a sort of roof along the dorsum. At the bottom of the spinal canal lies the cord, and over it, contained in the cranium, lies the brain. Thus we have an "exencephalus"; for while the brain does not, as in many cases, escape into the outer world, yet it

does lie partly outside of the cranium and in the spinal canal. The defect is in the occiput or inion, and therefore the variety is "iniencephalus."

The distance across the cleft of the first dorsal vertebra from the extremities of the laminæ is thirteen-sixteenths of an inch; from the upper extremity of the spinal canal to the second lumbar vertebra, where the cleft ends, is seven-eighths of an inch. The cervical spinal column curves downward and forward, making a concavity with the dorsal portion, which turns backward under the cranium. On opening the cranium the cerebral hemispheres are seen to be apparently of normal size. Examination of the abdomen, beyond a considerable protuberance due to the foreshortening of the back, shows nothing abnormal; the organs of this cavity and of the thorax all lie in their proper relations and positions. The umbilical cord is small just as it leaves the belly, but of normal size most of the way to the placenta. Its length is $8\frac{3}{4}$ inches.

The next case (and also case No. 16) I found in the museum of Rush Medical College, and dissected by permission of Dr. Ludvig Hektoen, and with the assistance of Dr. Louis J. Mitchell. They had not yet been reached in the overhauling which Dr. Hektoen was giving the museum on assuming charge, and were not labelled or dissected. It is not unlikely that search in the museums of medical colleges of the country might find many more specimens of iniencephalus. I believe the twenty-two cases here recorded are all that have ever been reported, at least in literature at all accessible.

IX. Case from Rush Museum (Fig. 11). This is an unmarked specimen without history of any kind. It is a female, apparently of full term. Beclard's centre is present in the femur; the finger nails reach beyond the ends, and the toe nails nearly to the ends, of the digits; the head is full-term size. The following measurements were made: length of body, $12\frac{1}{2}$ inches; length of back (cranium to anus), $2\frac{2}{3}$ inches; length of leg, $6\frac{3}{4}$ inches; length of arm, $7\frac{1}{2}$ inches; chin to perineum (anteriorly), $7\frac{1}{3}$ inches; bitemporal diameter, $3\frac{5}{8}$ inches; mentobregmatic diameter, $4\frac{1}{2}$ inches; occipito-frontal diameter, $4\frac{2}{3}$ inches. It will be seen that there is an immense foreshortening of the back due to the tilting backward of the head. The face looks forward and upward, leaving very little furrow beneath the chin. There is an opening in the abdomen at the navel, admitting three finger tips. The umbilical cord is to the left of this opening, which is fringed by folds of perito-

neum, through which protrude the naked intestines from the jejunum to the sigmoid, and also a small piece of the liver. There is a mesentery common to the small and large intestines. The sternum is cartilaginous. The anterior fontanelle is large and shaped like an acorn set upon a triangle; length, $2\frac{3}{4}$ inches; breadth at widest part, $2\frac{1}{2}$ inches.

A posterior median incision reveals a complete spina bifida to the tip of the coccyx. The cranium extends as far as the



FIG. 11.

lumbar region, attached ligamentously to the transverse processes and forming a roof over the spinal canal. There is no encephalocele. Cutting the attachments and turning the head forward reveals a wide rhachischisis of the whole cervical and dorsal regions. In the bottom of the depression lies the cord, and on top of the last the brain (macerated and decomposed beyond dissection). There is considerable lordosis of the cervical region of the spine and right scoliosis of the whole column, so that the ribs are irregular in course and deform the

chest cavity. The opening in the occiput consists of a large foramen magnum measuring: length, $1\frac{5}{8}$ inches; breadth, $1\frac{1}{2}$ inches. The width of the spinal cleft is $1\frac{1}{2}$ inches at the maximum. In the lumbar region is a loose piece of cartilage of the size of two split peas, ligamentously attached to the spine on the right side. The anus is pervious; all the abdominal organs not named above are negative; there is slight talipes varus of both feet.

Except for the gestation age and the celosomia, this case resembles No. 4. The child may perhaps have lived a short time; and, indeed, its deformities are not incompatible with indefinite continuance of life, provided the anterior abdominal opening could have been closed. A successful operation on a much greater celosomia is reported.⁵³

Iniiencephalus Apertus.—Next follows the second class, having a small encephalocele. The first case is copied in Saint-Hilaire's monumental work on anomalies and monstrosities.¹

X. Duges' case.¹² The head seemed to be confounded with the thorax, and turned back so that the occiput seemed lost between the shoulders. The anterior part of the neck is flush with the chin and sternum, allowing no cervical furrow. On the back, which seems very short, one sees a fungous tumor of the size of a little walnut, and behind it the thin red membrane by which the tumor is covered extends to the sacral region. Examination of the skeleton shows that the cranium is depressed and prolonged in front of the occipital orifice. The face is oblique and projecting. Several bones are welded together; others, as the parietal, show intervals of cartilaginous formation. The upper occipitals are flattened and run parallel to the base of the cranium. The spine, open posteriorly as far as the sacrum, is remarkable for a torsion so great that its cervical portion is situated under the basilar process and its dorsal portion lies horizontally under the base of the cranium. The cerebral hemispheres remain contained in the cranium; medulla passes by the occipital opening; the rest of the brain is lost in the fungous mass behind the head whence come all the cranial nerves. The spinal cord, adherent above to this mass, but not continuous with it, is complete.

There is also a large diaphragmatic opening, allowing the stomach and left lobe of the liver to occupy the thorax on the left side.

Very like this case of Duges' is the following, depicted in Ahlfeld's "Atlas" (Taf. xxxii., Fig. 14), and undoubtedly a typical iniiencephalus with small encephalocele:

XI. Potthoff's case.⁴⁴ As will be seen by reference to the figure (Fig. 12), there is considerable tilting backward of the head, so as to greatly shorten the back, and, by the depression of the head between the shoulders, an obliteration of the submental furrow. The head and body are almost one mass, from which hang down together the arms and legs. The back is so short that the anus lies high up toward the back of the head as well as a considerable distance from the vulva. A small, spongy tumor lies at the angle formed by the parietals with



FIG. 12.—Iniencephalus celosomus. Ahlfeld.

the dorsum. There is also part of the abdominal contents outside the body, escaping from a cleft in the anterior belly wall. There is complete spina bifida.

XII. Cruveilhier's case.^{13, 14} The mother was a multipara, aged 35 years, of ordinary health. The labor was uneventful and the position occiput right posterior. The child is a female, showing the strong tilting back of the head, two tumors behind the cranium, absence of neck furrow, chin continuous with the

chest, nose flattened, and mouth and ear curiously deformed. The mouth looks as if a string or bit were pulled tightly across it. The cheeks are continuous with the palate (Figs. 13 and 14). The first tumor is situated immediately behind the sagittal suture, and is separated by a fibrinous partition from the second, which lies to the right and a little below the first. Both communicate with the cranial cavity and are filled with membranes and serous and bloody fluid. The cranium contains brain, which only partially fills the cavity, floating in a serous fluid.

There is no trace of the squamous portion of the occiput, but



FIG. 13.—Iniiencephalus. Ammon.

through a large opening between the parietals the tumors protrude. The parietals extend over the cervical and the first four dorsal vertebræ, which are cleft anteriorly as well as posteriorly, having double bodies. There is no basilar occipital and but two rudiments of lateral occipitals, one on each side behind the temporals, serving as extensions of the cervical vertebræ. The sphenoid is the last bone of the cranium. The inferior borders of the parietals are attached to the transverse processes of the cervical and first four dorsal vertebræ.

The left lobe of the liver and part of the intestines lie in the left thorax through the diaphragm, which is wanting on that

side. The left lung is compressed; the right lung lies partly in a hernia in the neck; the stomach and duodenum lie partly in the posterior mediastinum; there is shortening and invagination of the esophagus.

The next case is reported in 1847. In many particulars it resembles the case of M. Duges, particularly in the extreme retroflexion and the encephalocele.

XIII S. W. Drew's and J. B. S. Jackson's case ¹⁶ (Fig. 15). The mother was a primipara; the labor occurred at eight and



FIG. 14.—Iniiencephalus. Ammon.

a half months; the vertex presented. The child, a female, lived half an hour; weight, five pounds; circumference of thorax, fourteen inches; club-feet; there was no neck furrow and the arms extended very low; cleft uvula; lungs irregularly fissured. Brain appeared at the upper part of the spine, looking red and vascular, and of the size of an English walnut. A large mass of brain was found within the cranium, showing distinct convolutions and weighing three and a half ounces. Spina bifida was complete, and two cords existed, one on each side of the spinal canal, communicating above with the medulla.

Examination of the bony preparation preserved in the museum shows the occipital bones united with the spinous processes as far as the first lumbar, except on the left side where there is considerable deficiency. The antero-posterior curve of the spine is excessive; the upper dorsals and middle lumbers form prominent points, and so the pelvis and extremities of the ribs are brought into close contact. The cranial cavity is quite capacious, leaving considerable space between the frontals and parietals and the base of the skull. The basilar and lateral

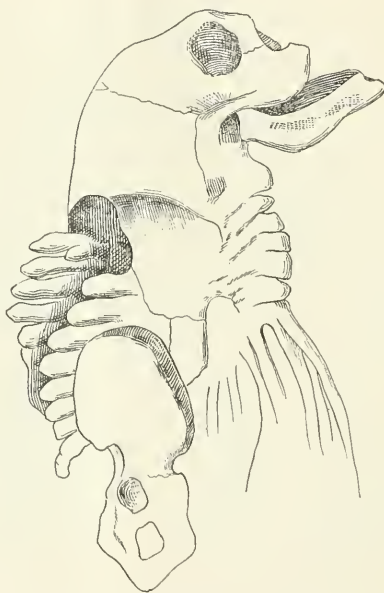


FIG. 15.—Iniencephalus. Jackson's case.

processes of the occipital bone are well developed. The posterior portion consists of a piece on each side sending a narrow process around behind the parietal to meet its fellow. Besides the marked antero-posterior curve, the spine is somewhat curved laterally. The thorax is very prominent; the anterior half has no connection with the ribs; seven ribs on the right side are partially fused; the twelve left ribs are mostly separate.

XIV. Lawther's case.¹⁸ Primipara 40 years old; labor began in the beginning of the eighth month. In examining in the O. L. A. position the finger fell into a cavity in the cranium oppo-

site the right ilio-pubic junction, the lower margin of which was rounded and the upper indefinable. On account of hemorrhage from a marginal placenta, he pulled down the feet and extracted a macerated female child. A longitudinal section was made into the vertebral column and the halves drawn aside. At the middle of a transverse line drawn between the apices of the shoulders the spinal canal curved forward and downward. In the centre of the column, in an elliptical cavity thirty lines in length, the cord was embedded. The cervical vertebræ were absent; instead is a deep, non-integumentary cavity extending up into the floor of the cranium. Into this cavity the curve of the spinal column partly projected. The occiput was absent except for a narrow, osseous arch in contact with the parietals. There was no cerebellum and only an "amorphous" cerebrum found—"a mere covering of brain substance enclosing an indefinable cavity." The only visible nerve was the optic.

The diaphragm was absent, as well as the mediastina and pericardium. The pleuræ and peritoneum were continuous, investing the organs and passing into the funis as far as the placenta, where it was reflected into a pouch. The cord was less than four inches long. The stomach was absent; the esophagus ended in a blind pouch; the lungs were rudimentary and the kidneys very large.

The finger, in passing during the vaginal examination into a cavity in the fetal skull, must have ruptured an encephalocele which protruded from the defect described in the occiput. The contents of a tumor could very easily have been missed among the blood following the placenta previa. Through this opening artificially made the subsequent efforts at delivery might very easily have forced most of the cerebral matter, leaving the sac enclosing the "indefinable cavity" described. The retroflexion of the spine and the description given of the cranial bones are sufficient evidence for us to class this case with the iniencephali.

XV. Vernier's case.¹¹ The mother, a primipara 21 years old and six months pregnant, had suffered from extreme distension of the abdomen so great that she could not sit and could hardly breathe. She was seized with strong pains, the cervix dilated, and the fetus followed quickly after an enormous gush of amniotic fluid.

The child had spina bifida, tilting backward of the head, and a hernial pouch behind the cranium containing brain tissue.

The two parts of the occiput did not meet in the middle, but were adherent to the corresponding parts of the upper cervical spine.

There was also cyclops and club-feet. The reporter classes this monster with the acephali, genus *rencephalus*, but in my opinion it belongs with the class we are considering.

It is not stated how much brain was found inside the cranial cavity, but the turning back of the head, the spina bifida, and

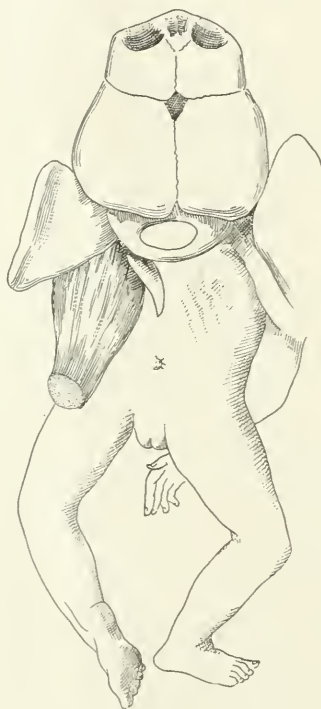


FIG. 16.—Iniencephalus. Remfrey's case.

the attachment of the occipital plates to the margins of the opening in the cervical spine point to iniencephalus.

The next case is an example of the extreme backward flexion which may occur in the bodies of iniencephali. In this the head and pelvis came so near together that the gluteus maximus took an origin from the occiput.

XVI. Remfrey's case.¹⁸ Full term; female, born dead; pelvic presentation and delivery by traction on feet, during

which cord (two inches long) broke. The face looks upward because of the strong retroflexion of the head, which covers the back so completely that the hairy scalp is flush with the buttocks. On the right side and overhanging the crest of the ilium is a collapsed sac, uncovered by hair, which oozes brain matter. The flexion is chiefly at the occipito-atloid joint; the occiput is very imperfectly developed and lies back so flat on the spine that the head nearly reaches the crests of the ilia, and



FIG. 17.—Iniencephalus. Remfrey's case.

the gluteus maximus on the left side takes an extra origin from the upper part of the occiput on the same side. There is also some lateral flexion of the body toward that side.

The mento-frontal diameter is $2\frac{3}{4}$ inches, bimastoid diameter $2\frac{3}{4}$ inches; forehead to buttocks $4\frac{3}{4}$ inches, bitrochanteric distance $2\frac{1}{4}$ inches.

The liver is very large and irregular in shape; at its lower edge projects a pedunculated portion, the size of a cherry, into

the amniotic cavity, showing as a prominence on the abdominal wall. The limbs and other viscera are normal.

The tabular portion of the occiput is represented by a crescentic plate on each side attached to the posterior margin of the parietal and separated from its fellow by a wide opening, partly closed below by the displaced spinal column, which thus forms the floor of the third fossa of the skull. The other cranial bones are normal. Irregular centres of ossification prevent counting the number of the vertebræ. There is complete spina bifida. The vertebral column curves forward for a short distance and then abruptly backward, so that the terminal vertebra is distant from the posterior margin of the left parietal only one inch. The whole column also inclines to the left of the median line. The ribs are irregularly developed, especially on the right side, and are more or less fused together. In other respects the fetus is normal (Figs. 16 and 17).

XVII. Case from Rush Museum, No. 140 (Fig. 18). There is no clinical history. The fetus is female and presents the following measurements: length, head to foot, $10\frac{3}{8}$ inches; length, body and head, $5\frac{1}{8}$ inches; length, trochanter to sole, $5\frac{3}{8}$ inches left, $5\frac{1}{2}$ inches right; length, acromion to finger tip, $5\frac{1}{8}$ inches right, 6 inches left; length, coccyx to cranium, $2\frac{9}{16}$ inches; bitemporal diameter, $2\frac{1}{16}$ inches; mento-bregmatic diameter, $3\frac{1}{16}$ inches; occipito-frontal diameter, $3\frac{1}{4}$ inches; bisacromial, $2\frac{1}{8}$ inches.

The toe nails are less than half-way out to the tips of the digits and the finger nails less than three-fourths; the chin is flush with the sternum; there is double talipes varus. The abdomen has been opened and sutured. The fetus appears to be of about the seventh month of gestation. There is the usual tilting back of the head and foreshortening of the back, while the face looks forward and a little to the left. There is no neck furrow, and the head appears as if set directly between the shoulders. In the median line of the back there is a soft tumor covered by a membrane and allowing one to feel the cleft spine underneath. This tumor measures $1\frac{1}{4}$ by $\frac{1}{16}$ inches and occupies most of the dorsal region. Protruding from a bony defect in the skull to the right of the median line and hanging over the right shoulder is another tumor of soft consistence, covered with skin, which bears hair on its anterior third. This tumor, which dissection showed to be an encephalocele, measures $2\frac{3}{8}$ by $2\frac{1}{4}$ inches.

A median dorsal incision is made from forehead to anus and the skin and tissues are turned back. Under the skin the lateral tumor is enclosed in a double sac, the outer part adherent to the skin (dura) and the inner free, allowing, through a small incision, brain matter in a disorganized condition to escape. The cavity of the tumor is continuous with that of the cranium through the bony defect. In dissecting the dorsal tumor nu-



FIG. 18.

merous fibres of the spinal cord and nerves adherent to the under surface are cut.

The parietal bones are of equal size, and an appearance of inequality is due to the fact that the head is twisted toward the right side of the back. The opening in the cranium through which the lateral tumor escapes is between the rudimentary squamous plates of the occiput, which, in the form of acute triangles, are articulated with the parietals at the lambdoid suture and with the basilar part of the occiput at their base below on

each side. The defect in the occiput between these two triangles is a round hole continuous below with the enlarged foramen magnum, thus making a figure 8. Through the upper half of the 8 protrudes the lateral tumor. The margins of the foramen magnum lie flat upon the spinal column and are ligamentously attached to the rudimentary laminæ of the widely open vertebræ. Thus the occiput covers the spinal canal, causing the foreshortening of the back of the fetus. The base of the left lateral occipital plate covers the spinal canal in the lower dorsal region just anterior to the dorsal tumor. At this region the transverse processes of the vertebræ are better developed than elsewhere, approach nearer to their fellows, and are united by a strong ligament (cut in the dissection). There is complete spina bifida as far as the tip of the coccyx, with flattening of the spinal canal. The flattened fibres of the cord and the nerves from it lie in the canal, and in the region of the dorsal tumor are spread over the whole inner surface of the latter. This dorsal tumor contains, besides the fibres above mentioned, a sac filled with clotted blood and with a pedicle passing upward through a constricted portion of the spinal canal under where the left lateral plate of the occiput touches the dorsum. A probe from above passes into this little sac, which is therefore a myelocoele, representing a diverticulum of the central canal of the cord. There is a lordosis of the cervical vertebræ and kyphosis of the lumbar. The axis of the spinal column is also turned to the right in the dorsal and cervical regions (right scoliosis).

The third class follows, including those cases of iniencephalus which have a large encephalocoele, but in which the other characteristics mark the species. The earliest case reported is that of Hull in 1802. This is mentioned by Saint-Hilaire as a case of iniencephalus. The original I have been unable to see, but I glean the following from abstracts made by J. Z. Lawrence¹⁹ and Cesare Taruffi.³

XVIII. Hull's case.²⁰ The fetus was still-born; the cerebrum, which was defective, almost wholly protruded from the cranium and lay on the back of the neck; there was spina bifida which opened the canal from the neck to the sacrum; the squamous portion of the occipitals was wanting; the frontals and parietals were small and depressed. It will be seen that the case approaches closely the type of exencephalus proper. There also existed club-foot and a union of three ribs.

The following case closely resembles the exencephalus in that a large portion of the brain lies in the posterior encephalocoele :

XIX. Gros' case.²¹ The mother was a primipara of 40 years of age ; the pregnancy was complicated with diarrhea, vomiting, and other digestive disturbances ; the labor was not abnormal ; there was slight hydramnios ; the puerperium was complicated by intense diarrhea, albuminuria, and septicemia.



FIG. 19.—Iniencephalus. Budin's case.

The fetus showed complete absence of the occiput, a notable diminution in the size of the parietals, and an enormous cerebral development behind the cranium. Spina bifida in the cervical region. A band horizontally in the mouth cavity divides it into two portions, in the middle of which is the uvula.

XX. Budin's case²² (Fig. 19). In January, 1872, entered the Maternité in Paris a primipara 24 years old, pregnant at

term. She was delivered that day of a dead female fetus weighing 750 grammes. There was a large tumor at the posterior part of the cranium, arising below the superior angle of the occiput and descending almost to the sacrum. Hair appeared on the anterior segment of this tumor.

Dissection showed considerable serous fluid between the skin and the dura and in the subdural and arachnoid spaces. The tumor also contained cerebral hemispheres. The cerebellum lay in the right occipital fossa within the cranium, and beneath



FIG. 20.—Iniencephalus. Budin.

it the medulla and part of the spinal cord. The bony opening in the cranium was bounded by the occiput, the cervical and the upper six dorsal vertebræ (Fig. 20). An anterior curve of the spine in the cervical region formed a deep concavity. The occiput is merely rudimentary as to the squamous portion, which consisted of plates at the sides and above the cranial opening, but the basilar process and the rest of the cranial bones were normal. The thorax is pigeon-shaped because of the sharp anterior curve of the spine. The head is tilted

considerably backward and the dorsum is correspondingly fore-shortened.

XXI. Rogers' case ²³ (Fig. 21). The mother was 22 years old and a quadripara. At term the abdomen was immensely distended, and a very copious flow of waters occurred after rupturing the membranes. A soft tumor was felt preceding the head, and the delivery of the body was delayed by a hard tumor in the anterior part of the fetal pelvic region. The child gasped and died immediately. It weighed eight and a half pounds.

At the basis cranii is a soft tumor as large as the head ; the back of the child is soft and no vertebræ are to be felt. The first cervical vertebra articulates with the sphenoid or the detached basilar portion of the occiput; thence the spine descends

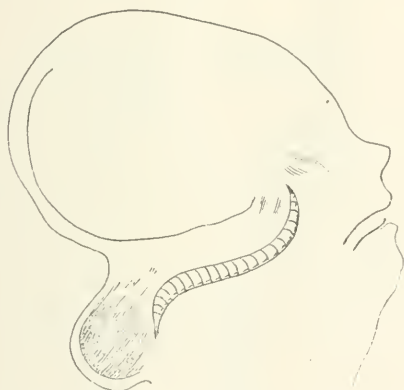


FIG. 21.—Iniencephalus. Diagrammatic sagittal section. Rogers' case.

to a level with the manubrium of the sternum, whence it turns backward and upward and terminates with a short downward curve between the spines of the scapula ; there is no bony column below this level until the pelvis is reached. The occipital bone is entirely free in its inferior portion and does not articulate with any other bone, but, curving upward into the cranial cavity, it leaves an opening into the brain box, whence came the fluid filling the external sac above mentioned ; there are no articular condyles on the occiput.

A hard, tense growth occupies the lower abdomen, extending down to and continuous with the labia majora. To the left of this is attached the umbilical cord. The abdominal tumor is filled with a brown, gelatinous fluid and contains folds of intestine. The anus is closed.

XXII. Bonnaire's case²⁴ (Fig. 22). A secundipara, without pathological personal or family history, entered the hospital about two weeks before term, showing great distension of the abdomen, but otherwise normal. Biovular twins were born having two placentas, the first fetus presenting by the vertex and the second by the breech. The first was normal in appearance, but the second had an amnion very dropsical. It made



FIG. 22.—Iniencephalus. Bonnaire's case.

a few efforts at respiration and died. The head, which was mostly face, is turned upward and set deep between the shoulders, so that the lobules of the ears touch the ends of the acromia. The chin and sternum are continuous, so that there is no neck. The spinal axis is so curved that the characteristic appearance of a much shortened body and disproportionately long limbs is presented. Behind the head a soft tumor, the

encephalocele, extends as a hernial pouch from the cranium and covers the back as far as the lumbar region. The hairy scalp covers the anterior third of the tumor : the rest is covered with membrane. Below the tumor is seen a complete spina bifida forming a gutter by the lamellæ and containing the flattened cord.

The cranial cavity and the parietal and frontal bones over it are rudimentary. Most of the brain is in the external tumor. There is a large opening in the occiput (Fig. 23) : the basilar portion is in two lateral pieces. The most interesting feature is a complete splitting of all the cervical and upper ten dorsal vertebræ, making a Y with the rest of the spinal column (Fig. 24). In the cervical region the branches of the Y curve sharply



FIG. 23.—Skull. Bonnaire's case.

backward, so as almost to touch the atrophied dorsal. Below the spinal cord a hernial pouch protrudes through the anterior fissure of the upper part of the spinal column, and this pouch contains part of the esophagus.

Dareste says that anterior fissure of the spine is not very rare. I have found only two cases where it existed in connection with iniencephalus.

The distinction between iniencephali and exencephali proper, while, as in most classifications, obvious at the extremes, becomes indefinite at the boundary line. I have, following Saint-Hilaire and Ballantyne, confined the former to those cases where the whole brain was practically outside the cranium. A few cases might by different authorities be classed in either

category. Thus I find one case, entitled "Description d'un Cyclope Iniencephali," reported by Poelman.²⁵ There is one compound eye in the middle of the face below a proboscis; the cranium consists of rudimentary bones in the vault, with most of the occiput lacking, so that the rudimentary brain escapes and lies on the back over a cervical and dorsal spina bifida; there seems to be no brain within the cerebral box, and the picture confirms the text in describing an exencephalus synophthalmus. I found almost the counterpart of this specimen in the Rush College Museum.

Taruffi,³ in the section on mero-acrania postero-spinale, states that he has collected ten cases where the cranial defect was in the occiput, and this class he considers synonymous with the



FIG. 24.—Cervical anterior spina bifida. Bonnaire's case.

iniencephalus of Saint-Hilaire. Taruffi's point of view differs much from that of other teratologists in regard to classification. Were we to consider all cases of occipital exencephalian in one class, there would be no division into exencephalus proper and iniencephalus. From a careful study of these ten cases I am constrained to believe that only one (that of Hull, p. 36) is truly an iniencephalus.

A. Reisel's case.²⁶ This is reported in 1683. A tom-cat was placed in sport about the neck of a pregnant woman. This so affected her that she gave birth, a few months later, to a living and robust boy who had a tumor on the back of his neck like a scrotum, adherent to the occiput and covered with hair of the same color as that of the cat. This tumor swelled with the

efforts of defecation and urination. It was lanced and several ounces of serous fluid evacuated. The child promptly died in convulsions at the age of about seven weeks. There is no mention of rhachischisis, and probably the case was one of notencephalus, that form of exencephalian which seems most compatible with continued life.

B. Hull's case (see p. 36).

C. Detharding's case.²⁷ The vault of the skull is flattened by reason of the rudimentary condition of the bones; the occiput is wanting in the condyloid portion, and the foramen magnum is enlarged into an irregular hole, out of which hangs a membranous substance; the cavity is only one-sixth the normal size and contains no trace of brain, in place of which is a soft, pulpy mass full of blood and covered by the membrane which hangs out of the foramen, as mentioned above. This specimen appears to be one of pseudencephalus.

D. Marye's case.²⁸ Hydramnios; female: still-born; head tilted back, with obliquity of cranium and face; frontals and parietals shortened and depressed; a membranous sac extending from the occiput over a spina bifida as far as the tenth dorsal vertebra and containing softened brain matter; the cranial cavity hardly exists and contains no brain. The case seems to be one of anencephalus. It is not included by Saint-Hilaire among the iniencephali, although reported in Paris several years before his book was published, and therefore doubtless known to him.

E. Scavone's case.^{30, 3} Immature female fetus; sac hanging from the back of head; face like a toad's; parietals and frontals flattened and without fontanelles; no indication of cerebrum, cerebellum, or spinal cord; occiput wanting in the squamous portion. Thus the specimen has all the characteristics of anencephalus.

F. Calori's case.^{31, 3} Female; great part of occiput lacking; complete spina bifida; marked cervical kyphosis; various anomalies of the intestines and of the umbilical and intestinal vessels. The original articles reporting this case and the preceding I have been unable to see, but refer to Taruffi's abstracts thereof.

G. Vrolik's cases.³² In the table of Vrolik's atlas, referred to by Taruffi, are two specimens depicted, neither of which is an iniencephalus. The first shows the vault of the cranium almost flat, with the occiput rising slightly higher than the other bones of the vault; a wide defect in the occiput, out of

which issues a membranous sac containing rudiments of brain in two lobes; hardly any cranial cavity; spina bifida to the sacrum; cervical and dorsal kyphosis so marked as to throw the head forward on to the sternum; the brain lies along the cervical spine and upon the basilar portion of the occiput, but entirely uncovered by bony vault—in other words, exencephalic (Figs. 25 and 26).

The other specimen has a “waterfall” tumor issuing from the occiput and hanging upon the neck, but without spina bifida or tilting back of the head—a true notencephalus (Fig. 27).

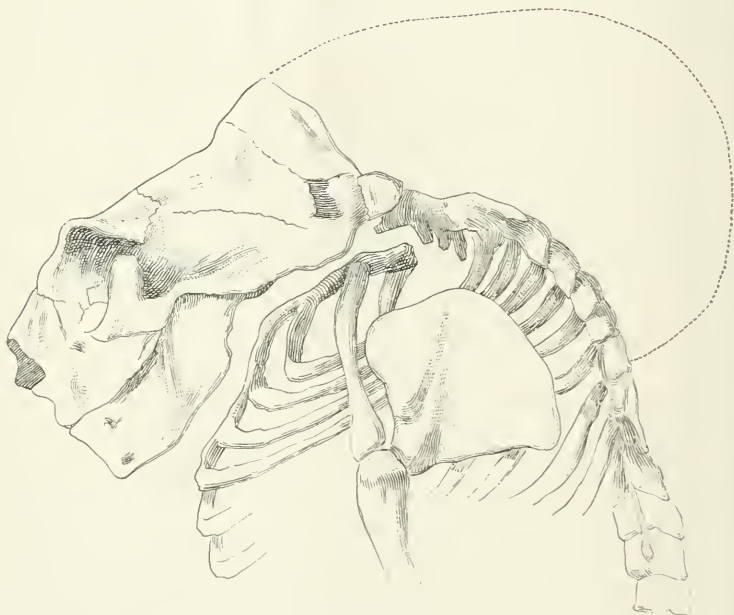


FIG. 25.—Exencephalus. Vrolik.

H. Castellani's case.³³ Female; premature about two months; head has appearance of that of a frog; neck furrow obliterated; a tumor of three lobes is attached to the posterior part of the head, resting upon the open spine; no cerebral cavity; cervical vertebræ wanting, right lung absent, and other anomalies. The case has every appearance of exencephalus proper.

I. Gallez's case.³⁴ Female with fungoid tumor behind the head, divided into three lobes by membranous septa and corresponding to the cerebral and cerebellar lobes; spina bifida, but

absence of cord ; face turned to left and head set well down into the chest. The whole brain seems to be in the outside tumor, and therefore, in spite of the author's classification of iniencephalus, it must be considered a case of exencephalus proper.

*J. Stein's case.*³⁶ This case is reported mainly to show a growth between and connecting the head and placenta. In addition the specimen, which is illustrated by a picture, shows the characteristics of derencephaly. From the posterior half and to the right of the head are given off two tumors from

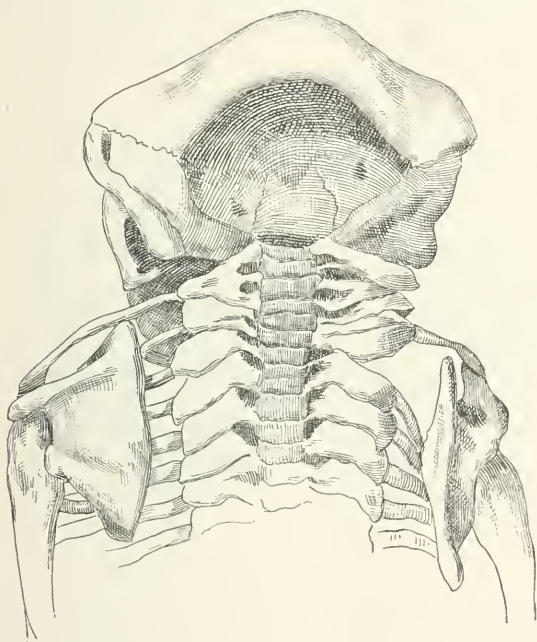


FIG. 26.—Exencephalus. Vrolik.

defects in the frontal, parietal, and occipital bones, the anterior one connected by a piece of placental tissue to the main placenta, which lies three inches from the head. The posterior tumor is composed of rudiments of brain tissue. No brain seems to be within the cranial cavity, which is itself very limited.

Besides these ten cases collected by Taruffi, only one of which is undoubtedly an iniencephalus, I find reference to two more whose originals I have not yet been able to obtain. One is a specimen depicted in Ahlfeld's "Atlas"³⁵ (Tafel xliii., Fig. 6), and

merely shows a skull with enlarged foramen magnum.⁵² This may be either iniencephalus or notencephalus. Vrolik also reports a case (Table lii., Fig. 5) of dilated foramen magnum with diminished calvarium, but does not say how much brain was in the cranial box, nor does the picture allow an inference (Fig. 28). Saint-Hilaire states that one of the three cases of iniencephalus reported up to his time was by Burkhardt,⁵⁶ but I can find neither original nor abstract of this article thus far.

A résumé of the twenty-two cases collected by me shows several facts of interest.

It will be seen that, in all cases where mention is made, there has been a marked tilting backward of the head and the cra-



FIG. 27.—Notencephalus. Vrolik.

nium has extended far backward over the dorsum. The rha-chischisis extends to the sacrum or further in ten, to the last dorsal or further in two, to the middle of the dorsal region in four, through the cervical region in three, and not stated in the remainder. There occurred anterior spina bifida in two cases, in one of these as far as the eleventh dorsal vertebra. Diaphragmatic hernia exists in four cases, is absent in three, and is not mentioned in the rest. Four children were born living but died soon after, seven were still-born, and the rest not stated. In fourteen the sex is stated; in only two was it masculine. Seven were born of primiparæ, four of multiparæ, and the rest not stated. Six were at full term, one in the ninth month, two in the eighth month, one in the seventh month, two in the

sixth month, and the rest not stated. In all cases where the fact was stated the spine was strongly curved antero-posteriorly and in three also laterally. In six cases there was hydramnios, in one a normal amount of amniotic fluid, and in the rest not stated. Club-foot existed in three, cyclopia in one, hydrocephalus in one, umbilical hernia in one, celosomia in two; other deformities or displacements of the alimentary tract were noted in eight; myelocoele in one; in one the external oblique took an origin from the clavicle, and in one the gluteus maximus had an extra origin from the occiput. In nine there is no serious malformation mentioned besides the iniencephalus and spina bifida. Only twice is it stated that the pregnancy was

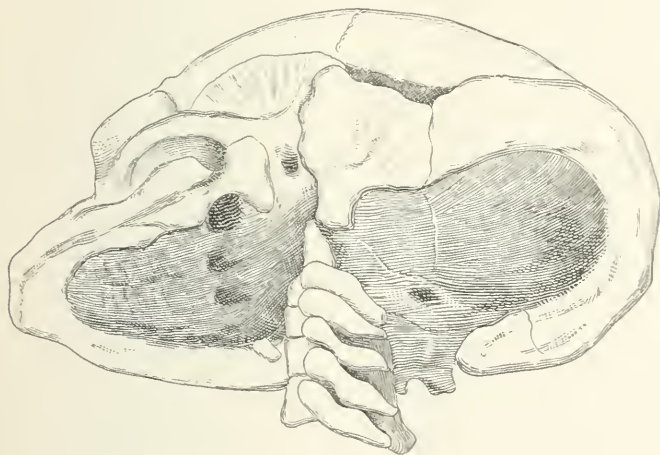


FIG. 28.—Occipital exencephalus. Vrolik.

double, once with uniovular twins. In eight the clinical history is not given, so that one cannot tell whether there was one or more fetuses. In the remainder the language would imply that the pregnancies were single.

The group of monsters having the main fault in the cerebro-spinal axis is a numerous one, if we include all forms from the small lumbar or sacral spina bifida to the rarest forms of exencephalus. The essential of the monstrosity is an abnormal openness of more or less of the cerebro-spinal bony canal. Spina bifida alone is tolerably frequent and, to a considerable extent, compatible with continued existence, especially when it can be relieved, as sometimes, by an operation. The anencephali are also relatively common. Puech³⁷ estimates that

they occur 14 times in 100,000 births—that is, 1 to 7,143. There is here a possibility of extrauterine life, although they are usually born dead. Some have lived several days,³⁵ usually dying in convulsions. They are more often female. Otto, in a collection of 600 monsters, reports 65 anencephali, of which 33 were female, 19 male, and 13 of unknown sex.³⁶ He described 23 exencephalians, among which is no iniencephalus. The exencephalian is not very infrequent³ and averages nearly equal as to sex. It is said to occur 6 times in 100,000, or 1 to 16,666 births.³⁷ They are usually born before term and die very soon. Of the exencephalians the least rare is the notencephalus. This is not necessarily fatal; indeed, an adult notencephalus with intellectual faculties has been observed.⁴⁰ The proencephali are rather more rare than the last variety. The podencephali are perhaps the rarest of all the exencephalians in the *genus homo*; in the lower animals they seem not rare.³⁹ They usually are born dead.⁴⁰ The hyperencephali, which live for only a short time, are usually male. The exencephalians having also rha-chischisis are both very rare, probably the iniencephali the most. As we have seen, they are usually female and usually born dead. To this variety Duges has applied the expressive term “diacrania occipito-rhachideana.” The exencephali proper, the cranio-rhachideana of Duges, are also very rare and live but a short time or are still-born.⁴⁰ There is a good specimen of this variety in the Rush Medical College Museum.

I believe it is in the study of monstrosities that we find the most unreliable and unsatisfactory instances of case-reporting. To me the most exasperating feature was the titles of the articles. “A Unique Monster,” “A Curious Teratological Case,” “A Remarkable Monstrosity,” and such lucid titles compelled the overhauling of hundreds of articles before finding one bearing on our subject. Few men seemed to have sought to classify their monster, and many seemed afraid to dissect it, obviously for fear of spoiling the esthetic appearance of the specimen. This last fear is groundless, for a fetus can be very extensively dissected and afterward completely restored to its former beauty by a little sewing and cotton-stuffing. In many, however, the greatest interest consists in the appearance of the skeleton. A good photograph of the monster and a good dried skeletal preparation, with the report of a complete and careful dissection, is of far more value to teratology than hundreds of uncut fetuses hidden away in jars and thousands of pages dealing mostly with the course of the labor and laboriously speculating on the possible “maternal impressions.”

Teratology requires more nowadays than, as Prof. Cleland says, to classify your monster and then put a sesquipedalian name to it. We must needs speculate on the etiology. Heredity and atavism, while doubtless playing some sort of rôle in malformations in general, can hardly be thought to have much influence on exencephalic monsters. Number 6 is the only one here where heredity is reported as having the least influence, and even there it is more likely that some influence was at work peculiar to that mother.

In this presence I should not dare to mention maternal impressions, and I refer those interested in that form of mysticism to Foerster's unanswerable arguments against it.⁴¹ "The cause of malformations is little known, but, from experiments on birds, is found to be physical and mechanical and pathological, and not mysterious" (Lancereau⁴²). The term "*lusus naturæ*" accounts not at all for teratological cases. Nature never errs and never has freaks, although her course is sometimes modified by circumstances accidental or experimental.

There have been two sets of views as to the origin of malformations and monstrosities. The pathological theory explains the anomaly by disease of the fetus, recognizing it as an entity like an adult. If the pathological influence acts very early in the history of the organism it influences the general harmony of the whole, especially modifying the nervous system, disarranging the relations, and producing serious vices of conformation.⁴³ Coming later in fetal life, disease can only influence the form of parts, producing only local malformations or anomalies. The embryological theory, which is held now by the majority of teratologists, explains monstrosities and malformations by arrest of development, usually by pressure at a more or less early period of embryonic life. Cruveilhier¹³ attributes great importance to contraction of the uterus, Panum to an arrest of development of the germinal spot or area pellucida, or in the fetal membranes, like the amnion. He admits the value of compression of fluid, as in hydrocephalus, and of contraction of cicatrices in the skin in compressing organs. Dareste⁴⁴ considers the cause of simple autosite monsters to be almost always due to arrest of development of the amnion and compression of the latter on the tissues growing beneath it. He experimented extensively on the eggs of birds, particularly of hens. He found that nutrition of the amnion came from the albuminous twists at each end of the yolk. These best convey the albumen from the white when the egg lies in certain positions and when

the egg is turned over daily. Swammerdam, as early as the eighteenth century, had found that the embryo could be modified in form by modifying the chrysalis. Dareste produced monsters by four means: the vertical position of the egg; applying an impenetrable covering to its shell; raising or lowering the temperature; unequal heating of different parts of the egg. The last method was used most. In an egg the germinating spot lies floating on top of the yolk, and in the usual situation this is the part which gets the most warmth. The eggs in the experiments were placed under a coil of warm water tubes in such a way that the heat was not equally distributed to the germinative area. Thus the parts getting the most warmth developed best, and other parts were correspondingly arrested. Different arrangement of the eggs produced different anomalies in the development of the germinating area, and the arrangement could even be so as to produce different anomalies at will. The arrest of development of the amnion, consequent on his treatment of the eggs, modified the evolution of the different parts of the embryo by the compression it exercised on them. This explains the association of several anomalies in the same individual monster. The slight differences in the date of the beginning of the compression cause the differences in the variety of the monstrosity, such as cyclopia, anencephalus, exencephalian, etc. The last, and iniencephalus as a variety of exencephalian, usually arose from an arrest of development of the cephalic hood of the amnion which is applied to the upper aspect of the head and compresses it. The cerebral vesicles are shortened and flattened. The rest of the cranium which has escaped compression goes on to ossify, and the variations of the places of the compression correspond to the different types of the exencephalic class.⁷ In iniencephalus there must be in addition a compression from the part of the amnion lying behind the cephalic hood to account for the great foreshortening of the back due to the anterior curving of the spine and the tilting backward of the head.

On the other hand, noted authorities on teratology combat this theory of the causation of single monsters, and even Dareste himself seeks not thus to explain double fetuses. He even states that in all his experiments he never produced a double monster, although he has often studied them in process of formation.⁴⁵ Taruffi³ objects that the amnion in these cases is often found normal in appearance. Cleland⁴⁶ believes that every vertebrate animal has at an early period a latent capabil-

ity of splitting itself up indefinitely. He would account for monstrosities as the results of over-stimulation of cell growth in the more specifical parts, and depending for particulars on the precise date or extent of the over-stimulation. When occurring soon after impregnation it leads to fissiparous division and two embryos; a little later to partial division of the central axis and a double monster partly united; later still it may cause imperfect closure of the neural canal and the production of a monster by defect, such as anencephalus or exencephalus. In favor of Dareste's theory has been urged the fact that monsters of the single variety so much more often occur in twin pregnancies, where compression could be easily exercised upon the parts of one of the embryos. However, in iniencephali it will be noticed that twins have seldom occurred. Again, hydramnios is a frequent accompaniment of monstrous birth, pointing to the probability of vascular disturbances and consequent dropsy of the amniotic membrane.

Syphilis is mentioned⁴² as a possible cause of some of the changes in the embryo or its surroundings which lead to monstrosity. It is not difficult to conceive of such a cause acting upon the very early embryo itself or upon the maternal side through the placenta and fetal envelopes.

The real study of teratology is quite modern. There are no records of monsters found among the Greek, Roman, or Arabic physicians. In early times doubtless the occurrence of a monstrous birth was considered evidence of the wrath of the gods and therefore kept concealed, because it is hard to believe that monsters did not occur in all periods of human history. They were hardly mentioned, however, until after the revival of letters, and even then the reports are full of mysticism and abound in accounts of fabulous monsters. Ambrose Paré, in his work on surgery, published in the sixteenth century, describes many monsters, mostly from hearsay, among them a winged, griffin-footed and horned specimen, a bird-headed dog, a human-faced horse, mermaids and mermen. These, and many other possible and impossible forms, are depicted in old-fashioned woodcuts.⁴⁷ During the next two centuries similar works appeared by Wallreich,⁴⁸ Kalinkius,⁴⁹ Stengelius,⁵⁰ and Mauriceau.⁵¹ The popular theory at these times was that monsters were the products of sexual union of widely differing species—after all, a more rational etiology than maternal impressions. Taruffi³ quotes the case of the sexual union of an Arcadian shepherd with a she-goat, which resulted in the birth

of a kid with a human head. Even Bartholin⁷ mentions, as something not remarkable, the burning at the stake of a young girl who gave birth to an anencephalus which was supposed by the teratologists of the day to look like a cat. This occurred in Copenhagen in 1683, "*oblascivorem cum fele jocum.*" Buffon in 1800 made some attempt at scientific classification, but it was left for the Saint-Hilaires, especially the younger, to elaborate a scheme of classification which fills the needs of to-day. Modern teratologists have devoted themselves largely to the etiology of the subject, and although the advance is relatively small and theories differ much within certain limits, still much has been done and is being done. Teratology is the pathology of embryology, and the advance of the last must contribute to the advance of the first. Experiment will in the future, as now, do much to clear up these obscure problems, but we will still continue to be largely dependent upon careful dissections clearly reported.

4426 LAKE AVENUE.

BIBLIOGRAPHY.

1. ISIDORE GEOFFROY SAINT-HILAIRE: *Histoire des Anomalies*, etc., Paris, 1838.
2. J. W. BALLANTYNE: *Teratologia*, Oct., 1895, p. 287.
3. CESARE TARUFFI: *Storia della Teratologia*, Bologna, 1889.
4. FLECK: In *Spinam Bifidam ejusque Genesin Animadversiones*, Inaug. Diss., Breslau, 1856.
5. AHLFELD: *Die Missbildungen des Menschen*, and *Atlas*, Leipzig, 1880.
6. R. THOMPSON LOWNE: *Descriptive Catalogue of the Teratological Series in the Museum of the R. C. S. of E.*, London, 1872, p. 68.
7. CAMILLE DARESTE: *Recherches sur Production artificielle des Monstrosities*, Paris.
8. COFFIN: *Trans. Obstet. Soc. Lond.*, 1882, xxiv., p. 98.
9. C. A. YOCUM: *Hahnemannian Monthly*, Nov., 1890, p. 773.
10. FRANCESCO LANDUCCI: *Annali di Ostet. e Gynec.*, Milano, 1893, xv., p. 251.
11. J. W. BALLANTYNE: *Teratologia*, Apr., 1895, p. 87.
12. DUGES: *Memoire sur les Altérations intrautérines de l'Encephale et des ses Enveloppes*.
13. JEAN CRUVEILHIER: *Anat. Path. du Corps Humain*, 1836, vol. i., livre xix.
14. F. A. VON AMMON: *Die angeborenen chir. Krankh.*, Berlin, 1842, *Tafel iv*.
15. J. B. S. JACKSON: *Descriptive Catalogue of Monstrosities in Cabinet of Boston Society for Medical Improvement*, 1847, p. 30.
16. GEORGE LAWTHORP: *Obst. Jour. Great Brit. and Ireland*, 1880, vii., p. 335.
17. VERNIER: *Gaz. Med. de Picardy*, 1885, iii., p. 167.

18. L. REMFREY : Trans. London Obst. Soc., 1894. xxxvi., p. 227.
19. JOHN Z. LAWRENCE : Tabular Analysis of Seventy-five Cases of Encephalocele, Medico-Chirurgical Trans., 1856. xxxix., p. 307.
20. HULL : Mem. of the Lit. and Phil. Soc. of Manchester, 1802, v., part ii., p. 495.
21. GROS : Comptes-rend. du Soc. méd. du Lyon, 1878, xvii., p. 151.
22. P. BUDIN : Obstet. et Gynéc., 1886, c. xii., p. 237.
23. FRED. T. ROGERS : Trans. Rhode Island Med. Soc., 1888, p. 448.
24. E. BONNAIRE : Arch. de Tocol. et Gynéc., Paris, 1882, xix., p. 275.
25. C. POELMAN : Bull. Soc. de Méd. de Gand, 1862, xxix.
26. SOLOMON REISEL : De Cerebello extra Cranium post Terrorem Gravidæ a Fele Imposito : Miscellanea Curiosa, etc., Annus II., Norimbergæ, 1683.
27. G. G. DETHARDING : Nova Acta Physico-medica Acad. Leopold Carol. Nat. Curios., Bonnæ, 1821, tome x., p. 705.
28. MARYE : Arch. gén. de Méd., Paris, 1827, tome iv., p. 379.
30. FRANCESCO SCAVONE : Atti della Accad. Gioenia, 1827, vol. ii., sem. i.
31. LUIGI CALORI : Novi Commentarii Acad. Scient., Bonnæ, 1844, tome vii.
32. W. VROLIK : Tabulæ ad Illustrandum Embryogenesin, Amsterdam, 1849.
33. V. CASTELLANI : Un Monstro Umano, Bull. delle Sc. Med., Bologna, 1856, ser. 4, vol. v.
34. GALLEZ : Bull. de l'Acad. R. de Méd. de Belg., 1868, ser. 3, tome ii.
35. CARL E. STEIN : Ein Fall von Hämicephalie, etc., Thesis, Marburg, 1879.
36. BURKHARDT : De Monstro Humano Notabile, Diss. in Freiburg, 1825.
37. PUECH : Des Anomalies de l'Homme et leur Fréquence relative.
38. LALLEMAND : Thèse de Paris, 1818.
39. ADOLPH W. OTTO : Monstrorum Sexcentorum Descriptio Anat., 1841.
40. LOUIS HENRY BENTKOWSKY : Étude sur un Monstre exencephalien, Thèse de Montpellier.
41. FOERSTER : Die Missbildungen des Menschen, p. 4.
42. E. LANCEREAU : Traité d'Anatomie Pathol., Paris, 1875.
43. PRINCETON : Progrès de la Teratologie depuis Saint-Hilaire, Thèse d'Agg., Paris, 1886.
44. CAMILLE DARESTE : Comptes-rend. de Acad. des Sciences, 1882, xciv.
45. CAMILLE DARESTE : Comptes-rend. de la Soc. de Biol., Paris, 1894, p. 757.
46. JOHN CLELAND : Mem. and Memorand. in Anat., vol. i., p. 127.
47. AMBROSE PARÉ : Deux Livres de Chirurgie, 1573.
48. C. WALLREICH : De Monstris, 1655.
49. JOH. KALINKIUS : De Monstris, 1647.
50. GEORG. STENGELIUS : De Monstris et Monstrosis, 1647.
51. JEAN PALFYN AND MAURICEAU : Traité de Monstres, 1703.
52. SCHLEMM (ref. by BUETTNER) : Dissertatio sistens Hydrocephaloceles Casum Singularem, Berlin, 1832.
53. DAVID L. BOOTH : Kansas City Medical Recorder, 1892, ix.
54. POTTHOFF : Descriptio Casus Rarissimi Spinam Bifidam Totalem sistens, Inaug. Diss., Berlin, 1827.

THE DIAGNOSIS OF EARLY PREGNANCY.¹

BY

WILLIAM S. GARDNER, M.D.,

Associate Professor of Gynecology, College of Physicians and Surgeons,
Baltimore, Md.

THE positive diagnosis of pregnancy has been a topic of prime importance to physicians in all ages. Until quite recently it was a question that was often settled by allowing sufficient time to elapse for it to settle itself, the appearance of the child being evidence that could not be successfully disputed. A great step in advance was made when it was discovered that the fetal heart sounds can usually be heard during the latter half of pregnancy. Many obstetricians have not yet gotten beyond that point, and in many of our medical colleges it is still taught, and the great majority of practitioners now believe that a reasonably certain diagnosis of pregnancy cannot be made until the fetal heart sounds are audible. In the days gone by this hesitancy and indecision was not of so great importance as it has become since opening the abdomen has become an everyday affair. Formerly the physician was called in to decide the cause of the cessation of menses or the enlargement of the abdomen of some unmarried girl whose future reputation might be staked on his decision ; or married women anxious to bear children, or others equally anxious not to have them, came to have their hopes or fears confirmed. These are sufficient reasons for the physician to exercise extreme caution, and are just as potent now as at any time in the past ; but recent surgical advances have added to these the great necessity of being able to recognize a pregnancy and distinguish it from other pelvic conditions at a period long before the fetal heart sounds can be heard. Not only is the reputation of the patient at stake, but the life of the child and the life of the patient, to say nothing of the chagrin of the operator who cuts down upon a normal pregnancy. These dangers to life and reputation make the diagnosis of pregnancy of much greater importance now than ever before. It would be rather overstating the case to

¹ Read before the Gynecological and Obstetrical Society of Baltimore, November 19th, 1896.

say that a two months' pregnancy can be absolutely diagnosed in every instance, but it is well within bounds to say that a two months' pregnancy is the easiest to diagnose of all pelvic growths which present a tumor of equal size, and, further, that it is only where unusually exceptional difficulties are present that it is not possible to make a positive diagnosis.

In examining nearly three thousand women a very considerable number of pregnancies have been discovered, ranging from the sixth week of gestation to several months. Many of these patients have been seen subsequently, and in not a single instance has the diagnosis of pregnancy failed to be followed either by an abortion or labor at full term. This, of course, does not prove that no mistakes were made, but it indicates that the number of mistakes must have been small or at least a few would have been discovered.

The observations made on seventy-five of these cases, nearly all from seven to nine weeks pregnant, form the basis of this paper. In all of these the records are not so complete as could be desired. Some errors of omission have been committed in the failure to record in all cases the presence or absence of some of the minor signs; and while a mental note was taken of them at the time, the fact that they were not recorded makes the impression that some of these minor signs are not present as frequently as they really occur. Again, it should be remembered that the breast signs are much more clear in women pregnant for the first time than in multiparæ: fifty-one of the seventy-five women examined are known to have been pregnant one or more times before the time at which they were examined. Of the remaining twenty-four nearly all were certainly pregnant for the first time, though a few may have had miscarriages which were not mentioned and left no definite traces.

The so-called "morning sickness," upon which so much value is placed by both the profession and the laity, is an indication of pregnancy the value of which has been over-estimated. The sources of error are two: first, it is very frequently absent; second, it is very often produced by other causes than pregnancy. A typical morning sickness is not infrequently met with in patients who have a uterine displacement or an extensive salpingitis. When it is due to pregnancy it may begin at any period, but the characteristic time for its appearance is the day upon which the first missed period would have fallen. When it begins at this time and continues, and when associated

with the absence of a menstrual period in a woman who has previously been regular and who has not had any previous stomach disorder, it becomes a sign of much value. I have made a note of its presence but thirteen times in seventy-five early pregnancies. This is no doubt rather under the average, but it is by no means so constant as is generally supposed.

The cessation of the menses at a definite time, when they had previously been regular both in time and quantity, is always significant of pregnancy. Fifty of the seventy-five patients examined gave such a history. Not infrequently a woman will menstruate once after she becomes pregnant, but such a flow, while it comes at the regular time, will usually be smaller in quantity than is normal for that woman.

Seventeen patients were either nursing and had had entire absence of menses since the previous confinement, or else were so irregular in their periods that nothing was to be learned from the menstrual history. Eight had had a discharge of blood from the uterus less than one month before the time when they were found to be pregnant. These patients usually belong to one of three classes: first, those who have one or more periods after becoming pregnant; second, hemorrhages due to threatened abortion, either accidental or criminal; third, those who, seeking to deceive the examiner, have deliberately stated that they had menstruated when they had not. Hemorrhages from placenta previa do not come on until a period later than that now under consideration. These patients who have recently had a discharge of blood constitute a very difficult class of cases, and while in many of them it is easy to say that they have recently been pregnant, the difficult and important question to decide is whether the ovum has escaped. This can usually be decided by a bimanual examination.

In many cases, and particularly in nulliparæ, the history and breast signs will be sufficiently clear to form a basis for a reasonable suspicion of the existence of pregnancy. In multiparæ both the history and minor signs may be entirely lacking. In either class of cases we are compelled to depend upon a physical examination for a definite diagnosis.

It is well to examine the breasts of all patients who complain of any pelvic trouble. This suggestion becomes an imperative duty whenever there is the slightest suspicion of pregnancy. It is true that a positive diagnosis cannot be made from the breast signs, but several points which assist materially in the sum of probabilities can usually be discovered. The breast

signs are most constant and most reliable in those pregnant for the first time, and these are the cases in which they are of the most value to us. They are less constant and less clearly marked in those who have had several children, but in these patients the abdominal walls are usually sufficiently relaxed to render a bimanual examination an especially easy task. During lactation the breast signs are, of course, useless.

It is a matter of great difficulty to determine which of these signs is of the greatest value. They are very closely associated, and when one is well marked there are usually others perfectly clear. I believe, though, that the enlargement of the papillæ comes the earliest and is the most constant and easily recognized. They are situated in the area around the nipple which is affected by the increased pigmentation. Their increase in size is quite as marked in multiparæ as in women who have not borne children, consequently they are valuable signs in a larger number of cases than most of the other breast signs. At times a small amount of secretion can be forced from them, but it cannot be regarded as of any great value.

Enlargement and tenderness on pressure are very early and constant signs and are often accompanied by a pricking sensation. This early enlargement can be distinguished from the deposit of fat by the breasts being firm and standing out from the chest wall. The fat breast is large, soft, and even in nulliparæ is more or less pendulous. The breasts do not assume the knotted or corded feel, produced by the enlargement and filling of the milk ducts, until a period of pregnancy later than that now under discussion. The increase in size and tenderness of early pregnancy is more of an erection than a hypertrophy. Of the twenty-four women pregnant for the first time, the presence of secretion in the breast was noted in fourteen, in four its absence was recorded, and in six there was no record. By the end of the second month a small amount of secretion is found in the breasts of a very large per cent of cases. By the end of the third month it is present in nearly all cases. This is a very valuable sign, but it must be remembered that it occurs occasionally in girls who are not, and who never have been, pregnant; but these are rare, and will, as a rule, be accompanied by a history that will easily distinguish them. In women who have borne children there may remain in the breasts for a long time sufficient secretion to be extracted by pressure, while during lactation, of course, the sign is absolutely useless. The increased deposit of pigment around the nipple

is, as a rule, clearly marked in brunettes by the second month. It becomes deeper and more apparent as pregnancy progresses. In patients of the blond type the deposit of pigment is usually so slight as to be of little value. The fact that this deposit never entirely disappears makes this sign of very little value after the first pregnancy. In the first pregnancy it holds a prominent place among the breast signs.

An inspection of the breasts, the external genitals and their condition, and especially the color of the visible portions of the vagina, should be made. The discoloration of the vagina, due to the distension of its vessels with venous blood, has long been considered one of the most reliable of the secondary signs of pregnancy on account of its constancy. It is of much more value in the later stages of gestation than in the earlier. I have recorded it as distinctly marked fifteen times in seventy-five cases. These women were all, with very few exceptions, less than three months pregnant. It is stated that this congestion is also sometimes due to the pressure of pelvic or abdominal tumors; but so far I have failed to see this discoloration in anything but pregnancy. This frequent association with pregnancy, and rarely with anything else, makes it strongly indicative of pregnancy.

Before attempting a digital examination the urine should invariably be drawn by a catheter. It is better to have the rectum empty also, but unless it is very much overloaded it gives little trouble.

In cases that have advanced as far as eight weeks, by the vaginal touch the superficial softening of the vaginal portion of the cervix, which gives a velvety feel, can be detected. This condition was found in all of the seventy-five cases upon which this paper is founded. It is very rarely absent. I have seen but one pregnant woman who had a persistently hard cervix, and that was due to a cicatricial tissue, and when labor came on it was necessary to forcibly dilate it. A similar soft condition of the cervix is sometimes found in some of the inflammatory conditions of the uterus. So that it should be borne in mind that while it is practically always present in pregnancy, and is consequently of much value, its presence in other cases detracts from its reliability. In attempting to elicit this sign the finger should be passed very lightly across the lips of the cervix. Hard pressure entirely destroys the characteristic feel. In a very large per cent of women, where the uterus was in a normal position before impregnation, as soon as it begins to

enlarge it has a tendency to tilt forward, and can be felt through the anterior vaginal wall without any external pressure being made to force it down.

I have never been able to make anything definite out of Hegar's jug-shaped uterus in a sufficiently large proportion of cases to render it of much value. On the other hand, by an ordinary bimanual examination it has been possible to arrive at conclusions that, at least to myself, have been eminently satisfactory. Just as in making a bimanual examination in other conditions, it is sometimes necessary to use an anesthetic to relax the abdominal walls; but ordinarily the anesthetic can be dispensed with. When the uterus is in the normal position, by placing two fingers of one hand in the vagina, bringing the tips of the fingers against the anterior vaginal wall—or, when retroverted, behind the cervix—and the other hand over the abdominal wall, the size, shape, and consistence of the uterus can be easily determined. At eight weeks the uterus is about the size of a large orange, is regular in shape and distinctly *cystic*. Practically a cystic uterus is always a pregnant uterus. There is at least one exception to this statement. A cystic fibroid will give nearly the same sensation as a pregnant uterus. But the cystic fibroid is a very rare condition, and with it is an absence of all the symptoms and minor signs of pregnancy. It is a slow growth, and if there is any possible doubt it can be settled by a delay of ten days. In that length of time a pregnant uterus would increase very appreciably in size; the fibroid would not change materially.

It is hardly necessary to go into the differentiation of pregnancy from other small pelvic tumors. All that is necessary is to make sure that the tumor felt is the body of the uterus and that it is *cystic*. If the tumor felt is not the body of the uterus or is not cystic, it may be one of some dozen pelvic possibilities. In each of the seventy-five cases the other signs and symptoms of pregnancy were given due consideration, but the diagnosis was not made until a cystic uterus was clearly felt.

It is very difficult to learn the time of confinement of the nomadic dispensary patient. I have been able to find thirty of the seventy-five examined. Of these, fourteen were confined at full term, ten aborted, and six were re-examined in the latter stages of pregnancy, though the exact dates of confinement are not known.

Of the fourteen that were confined at full term, eleven were confined at periods varying between two hundred and one days

and two hundred and fifty-seven days after examination, or, omitting the two extremes, the average duration of pregnancy after the examination was two hundred and eighteen days. All three of those confined less than two hundred days after examination were recorded as at least three months pregnant at the time they presented themselves.

Ten abortions in thirty pregnancies is a very high percentage. Some of these were accidental, but there is no doubt that the majority of them were produced by artificial means. Six of the ten were single women pregnant for the first time. One of the married women is known to have produced an abortion by artificial means. Another wished to have an abortion performed, and as she a few weeks later aborted it is highly probable that she had some assistance. This leaves only two that were probably accidental abortions.

In reviewing statistics of this kind we are impressed forcibly with the fact that the presumed period of gestation—that is, the length of time elapsing between the last menstrual period and the labor—is very variable. This variation is produced in two ways : first, by some women menstruating after they have become pregnant, and thus apparently shortening the period of gestation ; second, by the prolongation far beyond two hundred and eighty days. In five of the present series of cases, in which the last menstrual period was recorded so early in the pregnancy that little doubt could be thrown on its accuracy, the length of time elapsing between the menstrual period and the confinement varied from two hundred and eighty-six days to three hundred and four days.

The difficulties to be overcome in making the diagnosis, and some of the exceptions to the general rules, can best be illustrated by a few special cases.

CASE 372.—This patient has been under observation, from time to time, for five years. She had a small uterus, acutely anteфлекed. In 1893 she again presented herself. This time she had an abscess in both vulvo-vaginal glands, undoubtedly of gonorrheal origin. Later in the year her uterus was dilated, curetted, and packed with gauze. June 19th, 1894, she stated that her menses had been absent since April 13th. She had no morning sickness. The breasts were prominent, slightly tender, and a slight amount of secretion was present. The cervix was velvety; the body could be easily felt through the anterior vaginal wall, was enlarged to the size of an orange, and was cystic. A diagnosis of pregnancy was recorded. She was not

seen again until July, 1896. The first question that was put to her was, "What was the date of your confinement?" She said January 27th, 1895. That is, she was confined two hundred and twenty-three days after the diagnosis was made and two hundred and ninety days after the last period. This case presented no special difficulties, except that the patient was not married and denied the possibility of being pregnant.

CASE 972.—Presented herself January, 1893. She said that her menses had been regular up to and including September. In October, suspecting herself to be pregnant, she took oil of thyme and produced a slight discharge. There was no flow in November. On December 26th had a discharge of water and then blood. She then took oil of pennyroyal and had a considerable flow on January 14th, six days before the examination was made. She had had four children and one miscarriage previously, so that her breast signs were of no great value; but solely upon the physical condition of the uterus, as ascertained by bimanual examination, it was determined that she had not succeeded in producing the abortion which had been attempted. This was confirmed later by her having a full-time child on July 11th. This patient must have been a little more than three months pregnant at the time the examination was made, but the irregular uterine flow and the attempts at abortion rendered the history useless.

CASE 1268.—This patient had been suffering for nearly a year from headache, constipation, loss of appetite, weakness. On September 6th, 1894, she complained, in addition to these other troubles, of sick stomach. At the time she was nursing a 13-months-old child, so that the breast signs were entirely wanting. There was no discoloration of the vagina; the cervix was granular and of a blue color; the body of the uterus was the size of an orange, very soft, and fluctuating. A diagnosis of pregnancy of a little over two months was made. She was seen nine weeks later. The vagina was distinctly discolored, and the fundus half-way to the umbilicus.

CASE 1434.—White, 42 years old; had been married seventeen years and had seven children, the last one over three years before presenting herself on February 27th, 1894. Her menses had been regular up to January 12th. She insisted that she was not pregnant, because she had been in that condition so often that she felt that she ought to know. Her age made it seem probable that the menopause was setting in. Upon examination her breasts were found to be tender, but

neither tense nor secreting. The vagina was discolored. The cervix was everted and granular. The body of the uterus was in the normal position, but enlarged and soft. On these points a diagnosis of pregnancy was made. She was last seen June 20th, when the gestation had advanced to such a stage as to be unmistakable.

CASE 1461.—White, aged 24; single. The patient was seen March 7th, 1894. She stated that she had never menstruated but three times in her life, the last time having been in June, 1893; that for the last four months she had had attacks of vertigo and sometimes fainting, which have recurred regularly every four weeks. She had no morning sickness. On examination her breasts were enlarged, pigmented, and secreting. The vagina was purple; the cervix soft; the body large, rising far above the symphysis, and cystic. When told that she was without a doubt pregnant she indignantly denied the possibility of such a condition. Three months later she came to make inquiries as to confinement and was referred to the maternité.

CASE 1512.—White, aged 22; married; presented herself April 27th, 1894. She was then nursing a 4-months-old child and complained of having lost blood in small quantities continually for three weeks. She was constipated and had very little appetite. She came the second time on June 21st. The hemorrhage had ceased after the previous visit and had not returned. But she now complained of considerable pelvic pain. She was still nursing her child, now over 6 months old. Upon examination her uterus was found to be about double the normal size and cystic. She was told that she was again pregnant. She was not seen again until November, 1895, when it was learned that she was confined January 7th, 1895, or two hundred and one days after the diagnosis was made.

When seen the last time she was nursing this second one and about three months pregnant with the third one.

CASE 1832.—White; married; mother of three children, the youngest 2 years old; came to the dispensary with her husband December 7th, 1894. Her menses had been absent about four months; the exact date of last flow was not known. She complained that she had had trouble with her head for a year past; that she could not control her feelings; that she was not able to concentrate her attention enough to attend to her household duties. She had no morning sickness. She stated that within two weeks she had consulted a physician, who had examined her and said that she had some womb trouble and that she must be operated upon to be relieved.

Physical examination: The breasts were very flabby; perineum ruptured and relaxed; vagina relaxed and discolored; abdominal wall thin and extremely pliable; the cervix soft and granular; the body of the uterus was larger than a closed fist and cystic. She was told that she was undoubtedly pregnant. She was confined July 19th, 1895, two hundred and twenty-four days after the examination.

1012 McCULLOH STREET.

SOME FURTHER OBSERVATIONS CONCERNING MOVABLE KIDNEY.¹

BY

CHARLES P. NOBLE, M.D.,
Surgeon-in-Chief, Kensington Hospital for Women,
Philadelphia.

BEFORE the Pennsylvania State Medical Society, in May, 1895, I read a paper entitled "Movable Kidney."² This paper was elementary in its character and dealt with the subject in a systematic manner. I propose at this time to review the conclusions arrived at in the paper referred to, to present the results which I have obtained from the operation of nephrorrhaphy, and to develop more fully some points only touched upon in the previous paper. The following are the conclusions:

"Movable kidney is a very common condition among women. I find it in one-fourth of my own patients. Both kidneys are movable in about one-tenth of the cases.

"The underlying cause of movable kidney is a deficiency of adipose tissue, especially in the perirenal region. Tight lacing, multiple pregnancies, and falls occasionally act as contributing causes.

"The symptoms of movable kidney are both reflex and local. The reflex symptoms are those at times of neurasthenia, irrespective of its cause. In other cases nervous dyspepsia, palpitation of the heart, distension of the abdomen with gas, and neuralgic areas are the symptoms complained of. Patients are usually unable to lie upon the side opposite to the movable kidney. The local symptoms are a sense of weight or bearing

¹ Read by title before the Southern Surgical and Gynecological Society November 12th, 1896.

² Gaillard's Medical Journal, New York, 1895, vol. lxi., pp. 59-65.

down, soreness in the kidney region, attacks of pain similar to renal colic, and in rare instances symptoms of strangulation due to torsion of the vessels of the kidney.

“Movable kidney may be suspected when its rational symptoms are present, but the diagnosis must be made by a physical exploration. This should be made with the patient in a standing position. The diagnosis can be made with the patient lying on her back only in long standing cases—where the displacement is extreme—as usually in that position the kidney slips up under the margin of the ribs. In many cases movable kidney gives rise to no symptoms and therefore does not require treatment. The rest cure promises to be efficient in cases of slight degree, as the kidney returns to its normal position while the patient is lying on her back, and the increase in fat which the rest cure usually brings about should effect a cure. The rest cure used in cases of long standing, with extreme displacement of the kidney, will improve the general condition of the patient, but will not improve the local trouble. Nephrorrhaphy is a simple and safe operation, which should be done in the cases having well-marked displacement—that is, three inches and upward. The more marked the local symptoms the more necessary is the operation. The reported cases indicate that the results are permanent.”

Further study of the subject for a year and a half has only served to confirm most of the preceding opinions. I have nothing new to offer concerning the frequency, the cause, the symptoms, or the diagnosis of movable kidney. These points have been so well worked out by others as well as by myself that they may be considered as definitely established.

I would like to draw attention anew to the importance of examining patients in the standing position, not only for the diagnosis of movable kidney, but for the estimation of the degree both of its displacement and of its movability. For some years, in the more or less systematic examination of office patients, I looked in vain for a case of movable kidney. My interest in the subject was stimulated anew partly by Dr. Edebohls' original paper on the subject, and more especially by a private interview with him in 1893, after which I began systematically to look for movable kidneys in all cases having the rational symptoms of this disorder. These examinations were all made with the patient lying on the back upon the office examining table and were entirely fruitless. Finally it occurred to me that an examination of the patient in an erect posture

would give better results, and experience has shown this to be the solution of the problem of diagnosis.

After one has become skilled in searching for movable kidneys the diagnosis can frequently be made even with the patient on her back. The patient should be instructed to take deep inspirations followed by full expirations, during which she should relax the abdominal muscles. If at the end of inspiration the tissues immediately below the ribs be compressed between the thumb and finger, not infrequently it is possible to grasp the kidney as it is forced down below the margin of the ribs by inspiration; and in cases in which the degree of movability is great it is often possible to palpate the organ with great facility. This method of examination, however, gives very inaccurate results as to the degree of movability of the kidney. The displacement of the kidney at the time of examination depends entirely upon the voluntary efforts of the patient at inspiration and straining, and as a consequence extremely movable kidneys are at times forced down but little, and in other cases slightly movable kidneys are forced down to the limit of their movability.

The best method of examination is as follows: The patient's clothing should be loosened, all bands about the waist unfastened, and the skirts supported by a nurse or assistant, so that the patient will not be embarrassed with the fear that her clothing will fall off. She should then stand before a table or desk of convenient height (about thirty inches), with the examiner seated upon her right. She should then bend forward from the hips and support some of her weight by resting her hands upon the table. She should be directed to respire regularly, care being taken to relax herself thoroughly during expiration. The examiner's left hand should be placed against the lumbar region posteriorly, and his right hand in a corresponding position in front of the kidney. By a conjoint manipulation the region between the two hands can be carefully palpated, and if present the kidney is easily recognized. The points to be looked for are the shape and size of the kidney, and the fact that it can readily be displaced upward beneath the margin of the ribs, and that it will return to its former location so soon as the examiner's hands no longer support it. When the kidney is compressed, as a general rule the patient complains of tenderness or pain of a peculiar character, and often makes the statement that the pain causes a feeling of faintness or nausea.

By this method it is possible not only to diagnose the exist-

ence of movable kidney, but to estimate with exactness both the extent of the displacement and the degree of the movability. This undoubtedly is one of the chief merits of the method of examination, because of its very positive bearing upon the indications for treatment.

Sufficient time has not yet elapsed to justify dogmatic statements concerning the treatment of movable kidney. From the beginning I have been impressed with the necessity of studying this problem in the broadest possible way, and further observation has served to confirm this judgment. Very frequently the displacement of the kidney is only one of a number of morbid conditions which exist in the same patient. In cases of downward displacement of the abdominal viscera as a whole, or of several of these viscera, displacement of the kidney is a common accompaniment. In such cases the displacement of the kidney is only one factor, and treatment addressed to it alone naturally would fail to effect a cure. In such cases nephrorrhaphy must be preceded by or followed by proper treatment for dilatation and displacement of the stomach and to tone up not only the muscular coat of the alimentary canal, but the abdominal muscles and the general muscular system of the patient.

Hysterical and neurasthenic patients having movable kidneys require special study. It should not be forgotten that in about half the number of cases in which the kidney is movable symptoms are absent ; therefore, in cases presenting hysterical or neurasthenic symptoms, it by no means follows that these are due to the dislocation of the kidney. Before advising nephrorrhaphy in this class of cases, their nervous symptoms should be treated by approved methods, and operation should only be undertaken when non-operative methods have failed to give good results.

In cases of movable kidney of slight degree and not of long standing, a course of treatment addressed to improving the general nutrition and increasing the amount of fat frequently effects a cure. The rest cure is especially valuable in this class of cases. While the patient remains upon her back in bed the kidney occupies its normal position. If, by means of the rest cure and other measures directed to improve nutrition and increase the body weight, the patient will take on fat, a permanent cure can be effected.

Palliative treatment is useless in cases in which the kidney is extremely movable and much displaced. Such cases should have nephrorrhaphy performed. This is especially true for

those in which marked local symptoms are present, such as pain in the kidney itself, a sensation of dragging caused by traction of the kidney on its nerves and vessels, attacks of hydronephrosis due to extreme torsion of the kidney on its vessels. In such cases the integrity of the kidney structure is endangered, which gives another indication for operation besides that of the more usual symptoms due to the displacement. One case of chronic hydronephrosis with destruction of the kidney substance, due to a neglected movable kidney, has come under the writer's notice.

My experience with nephrorrhaphy embraces eighteen cases, operated upon between October 26th, 1893, and September 3d, 1896. Of these, seventeen recovered and one died. The technique employed in the first cases was that of Edebohls, which may be briefly described as follows: The patient is placed prone upon the operating table, with an air cushion under the epigastrium. The object of the pad is to force the kidneys toward the loin. Under the usual antiseptic precautions an incision is made between the last rib and the ilium, about over the edge of the quadratus lumborum muscle. This is carried down through the muscular structures of the back, when any bleeding points are caught and ligated. The layer of fascia which lies below the muscles is then divided, which exposes the perirenal fat or fatty capsule of the kidney. This is seized and torn through or incised, when the kidney is found and teased out through the lumbar incision. The fatty capsule of the kidney is carefully stripped away from the kidney itself, and redundant portions of the fatty capsule are excised. The proper capsule is then split along the external border of the kidney, and by blunt dissection is separated for half an inch on both sides of the incision. Venous oozing from the kidney is disregarded. Three or four sutures of silkworm gut are passed through the kidney in such a way as to separate the reflected proper capsule of the kidney. The kidney is now repositied within the abdominal cavity, and the ends of the sutures are drawn, by means of a needle and carrier, through the muscular structure of the back. A silkworm-gut drain is then introduced down to and along the external border of the kidney. The wound is now cleansed and the sutures tied. These sutures are introduced in such a way that the exposed tissue of the kidney itself is brought in contact with the muscular structures of the back. Additional silkworm-gut sutures are passed through the muscles to close the incision. All the sutures up to this point

have entered and emerged just externally to the muscular layer, so that when tied they are buried beneath the skin and subcutaneous fat. A row of superficial interrupted sutures is now introduced to complete the closure of the wound. The wound is dressed with an antiseptic dressing; an abundance of gauze being used to absorb the serum, which usually pours out along the drain quite freely. Edebohls does not remove the drain for some days.

Experience with this technique has caused me to modify it in various ways. My own experience corresponds with that of Edebohls that suppuration occurs in a considerable percentage of cases treated in this way. Four cases out of eighteen suppurated. In one the suppuration was extensive and immediately followed the operation. In another it followed the operation immediately, and was due to the fact that a silk ligature was overlooked and the end of it hung out through the wound, serving as a means of infection. Only one deep suture was involved, and when this was removed the sinus healed up and the patient's recovery was not delayed. In two other cases suppuration took place some weeks after operation. In one the deep stitches were removed and prompt healing took place; and in the other a stitch was cut on both sides of the knot, leaving the loop in, and this patient was bothered for a long time with a sinus before sound healing took place. This very large percentage of suppuration has made me feel the necessity for an improvement in the technique employed. In the last patient operated upon every bleeding point was ligated and the wound carefully closed without drainage. Unless future experience shall show that the results under this method are not so good as before, I shall continue to employ it. I have continued to use silkworm gut as the suture material because it has given such uniformly good results as a buried suture in celiotomy and herniotomy cases. Should a large percentage of cases suppurate, undoubtedly it would be better to use an absorbable suture, even though the percentage of relapses should thereby be increased. A rigid attention to asepsis and the ligation of bleeding points should, however, reduce the chances of suppuration to a minimum.

It has occurred to me, as doubtless to all operators, that the suture might constitute the point of irritation for the formation of a stone in the kidney. No such case has been reported, and the nature of the processes of repair are such as to indicate that it is not likely to occur. A scar-tissue capsule is formed about

the stitch, shutting it off from the secreting structure of the kidney, and thus preventing the suture from coming in contact with the urine.

Attention should be called to the necessity for care in tying the sutures which pass through the kidney. These should be tied snugly, but not tightly, as the kidney substance is so friable that it would be very easy to cut through the kidney by too great tension in tying the suture. A useful point is to introduce a suture through the muscles of the back between each of the kidney sutures. By tying this set of sutures snugly the wound in the muscles can be closed without the necessity of putting tension upon the kidney sutures. In patients having much subcutaneous fat it is well to have the buried sutures include a part of the fatty layer. This makes the knot more superficial and more easily removed in case of suppuration.

After splitting and dissecting off the proper capsule of the kidney in a number of cases, after the suggestion of Edebohls, I abandoned this practice, because it did not appeal to me as serving any good purpose. The proper capsule of the kidney is not like a mucous membrane, and I see no reason why it will not unite to the muscles of the back as firmly as the substance of the kidney itself. If my supposition is correct, this procedure merely adds an additional traumatism to the kidney and increases the surface for oozing, while adding nothing to the success of the operation.

Those having had little experience in operations upon the kidney will at times be puzzled to locate it after making the lumbar incision. If, as is usually the case, the operation is done upon the right side, unless care is taken, not infrequently the liver will be mistaken for the kidney and the peritoneal cavity opened as a consequence. The two organs can be distinguished by feeling along their borders. The border of the kidney is round, while that of the liver is very thin. When the kidney is not felt or seen when the perirenal fat is opened, and is not felt at or about the margin of the ribs, it is well before searching further to feel down toward the pelvis. Not infrequently, in cases having very movable kidneys, the kidney will be found down in the false pelvis. To remember this point will often avoid a tedious search.

After nephrorrhaphy, as a rule, patients make a smooth progress toward a recovery from the operation. The amount of pain complained of is somewhat out of proportion to the gravity of the operation, and is probably due in part to the fact

TABLE OF NEPHRORRHAPHIES.

Number.	Name.	Date.	Age.	Diagnosis.	Operation.	Amount of urine voided per twenty-four hours.				
						1st	2d	3d	4th	5th
1.	Miss E. J.	October 26th, 1893.	23	Movable kidney.	Single nephrorrhaphy, right.	Oz. 17	Oz. 15	Oz. 20	Oz. 20	Oz. 26
2.	Miss E. J.	November 20th, 1893.	23	...	Single nephrorrhaphy —left.	20	16	22	20	25
3.	Mrs. H.	November 24th, 1893.	30?	Movable right kidney.	Single nephrorrhaphy.	..	..	..	..	..
4.	Miss S. D.	January 18th, 1894.	19	Movable right kidney.	Single nephrorrhaphy.	19	23	23	28	33
5.	Mrs. L.	June 11th, 1894.	45?	Movable right kidney.	Single nephrorrhaphy.	17	19	22	21	25
6.	Miss E. T.	December 18th, 1894.	27	Movable right kidney.	Single nephrorrhaphy.	15	21	24	22	35
7.	Mrs. A. T.	March 21st, 1895.	35	Movable kidney.	Double nephrorrhaphy.	24	24	19	25	30
8.	Mrs. G.	April 18th, 1895.	42	Movable right kidney.	Single nephrorrhaphy.	14	23	26	..	..
9.	Mrs. D.	June 17th, 1895.	30?	Movable right kidney.	Single nephrorrhaphy.	..	..	..	..	..
10.	Mrs. H.	July 15th, 1895.	43	Movable right kidney.	Single nephrorrhaphy.	19	20	21	20	30
11.	Mrs. W.	September 2d, 1895.	31	Movable kidney.	Double nephrorrhaphy.	17	26	28	30	35
12.	Miss C.	September 19th, 1895.	32	Movable right kidney.	Single nephrorrhaphy.	17	16	22	22	30
13.	Miss B.	November 14th, 1895.	37	Movable right kidney.	Single nephrorrhaphy.	16	18	15	18	16
14.	Mrs. E.	November 14th, 1895.	21	Movable right kidney.	Single nephrorrhaphy.	12	24	26	22	30
15.	Mrs. C.	December 12th, 1895.	35	Movable right kidney.	Single nephrorrhaphy.	13	15	17	22	26
16.	Mrs. V.	April 25th, 1896.	..	Movable kidney.	Double nephrorrhaphy.	..	..	..	..	..
17.	Mrs. S.	April 26th, 1896.	24	Movable right kidney.	Single nephrorrhaphy.	25	25	29	30	28
18.	Mrs. K. J.	September 3d, 1896.	35	Movable kidney.	Double nephrorrhaphy.	12	34	30	24	31

that it is necessary to lie upon the wound, and in part also to exudate immediately behind the peritoneum. In three cases upon whom I have operated obstinate nausea and vomiting have resulted. This was due probably in part to the condition of health of the particular patients, and in part to the sympathetic relation which exists between the kidney and the stomach.

The amount of urine passed after nephrorrhaphy does not vary much from that passed by other patients upon restricted diet. In the annexed table the amount of urine passed by the patients during the first five days is given. In five cases

TABLE OF NEPHRORRHAPHIES (*Continued*).

Course.	Temperature.	Result.	Discharge.	Remarks.
Good recovery. Suffered very much first three days from vomiting.	Afebrile.	Recovery.	.....	Patient admitted to hospital September 4th, 1894. Had stitch removed. Again, October 17th, 1894, with sup-puration of incision. Dis-charged December 3d, 1894.
Good recovery.....	Afebrile.	Recovery.	December 9th, 1893.	
Uninterrupted.....	Afebrile.	Recovery.		
Uninterrupted.....	Afebrile.	Recovery.	February 11th, 1894.	Suture removed July 24th, 1894. Sinus cured.
Nephritis.....	Afebrile.	Died.	.....	Died suddenly on fifth day.
Good recovery.....	Afebrile.	Recovery.	January 23d, 1895.	
Uninterrupted.....	Afebrile.	Recovery.	April 16th, 1895.	
Good recovery.....	Afebrile.	Recovery.	June 1st, 1895.	Incision in loin. No sutures through kidney. Fatty cap-sule sutured.
Uninterrupted	Afebrile.	Recovery.		
Good recovery	Febrile.	Recovery.	August 9th, 1895.	
Good recovery.....	Afebrile.	Recovery.	October 3d, 1895.	
Uninterrupted.....	Afebrile.	Recovery.	October 25th, 1895.	
Good recovery. Nephri-tis.	Febrile.	Recovery.	January 4th, 1896.	
Uninterrupted.....	Afebrile.	Recovery.	December 10th, 1895.	
Uninterrupted.....	Afebrile.	Recovery.	February 1st, 1896.	
Good recovery. Sup-puration of left inci-sion. Nephritis.	Febrile.	Recovery.	July 11th, 1896.	Deep sutures on left side were removed.
Good recovery. One buried suture suppu-rated and was re-moved. Nephritis.	Afebrile.	Recovery.	June 6th, 1896.	Infection due to long end of silk ligature.
Uninterrupted.....	Afebrile.	Recovery.	October 4th, 1896.	

the operation was followed by nephritis, as indicated by the presence of tube casts and albumin in the urine. In only two of the patients, however, were there any of the constitutional symptoms of acute nephritis. In all cases the urine was free from tube casts and albumin before the patients were dis-charged.

One patient died. This patient had been an invalid for years and had chronic Bright's disease. In addition to the general nervous symptoms due to the displacement of the kidney, she suffered marked pain in the kidney itself. The operation was undertaken because of the aggravated suffering of the patient,

with a distinct recognition of the extra risks involved. She died suddenly on the fifth day. A mild acute nephritis followed the operation, accompanied by some nausea. Apparently she gradually improved after the operation, and on the fifth day was feeling quite comfortable, except that she had some palpitation of the heart. Suddenly she cried out for air, sat up in bed, and died. No autopsy was permitted, so that the exact cause of death was not known; it was probably an embolus in the coronary artery or one in the pulmonary artery. The results in seventeen cases have varied, but in general have been very satisfactory. In nine cases women who had been chronic invalids for years have been restored to health. In these cases the operation has been absolutely a success. Of the other eight cases, four are too recent to form an opinion as to the permanent effect of the operation. In two of them the patients are much better and have become quite stout. Of the remaining four cases, one has been counted double, as she had both kidneys sewed at different times. From being an absolute invalid she is now a hard-working woman. One patient has been an attendant in doctors' offices since she was a girl. She has gained flesh and lost some of her old symptoms, but still remains neurasthenic. The remaining two cases feel entirely satisfied with the result of the operation. In all of the cases operated upon the kidney has remained in position. To sum up my experience: The results obtained from nephrorrhaphy for movable kidney are as satisfactory as those from any other operation in surgery.

In conclusion I feel that it is important to urge that the condition of movable kidney has been studied comparatively for a short time, and therefore it is deserving of the more attention on the part of clinicians. It is not impossible that more will be learned as to the ultimate results of nephrorrhaphy, and therefore it is the part of wisdom to resort to this operation only after the failure of medical and hygienic measures, in cases of moderate displacement. On the other hand, experience has demonstrated the futility of such measures in cases of marked displacement, especially those having local symptoms. Some experience has accumulated to show a relation between movable kidney, hydronephrosis, and suppuration in the kidney. Nephrorrhaphy should be performed in all cases of marked displacement of the kidney, and with the expectation of a successful result in a large percentage of them.

LICHEN RUBER AND LICHEN PLANUS.

BY

GEORGE HENRY FOX, A.M., M.D.,

Clinical Professor of Skin Diseases. College of Physicians and Surgeons, New York;
Physician to the New York Skin and Cancer Hospital, etc.

(With plate and eleven illustrations.)

LICHEN RUBER, or pityriasis rubra pilaris as it is called by many writers, is a rare disease, but one which is liable to affect



FIG. 1.—Papular form of lichen ruber.

children as well as adults. It is a chronic and obstinate disease, in which the lesions are small, reddish, acuminate papules, usually seated at the orifice of hair follicles. These do not increase in size, but by multiplying and coalescing produce patches covered by fine, whitish scales and characterized by an exaggeration of the natural furrows of the skin.

The eruption often undergoes a spontaneous improvement,

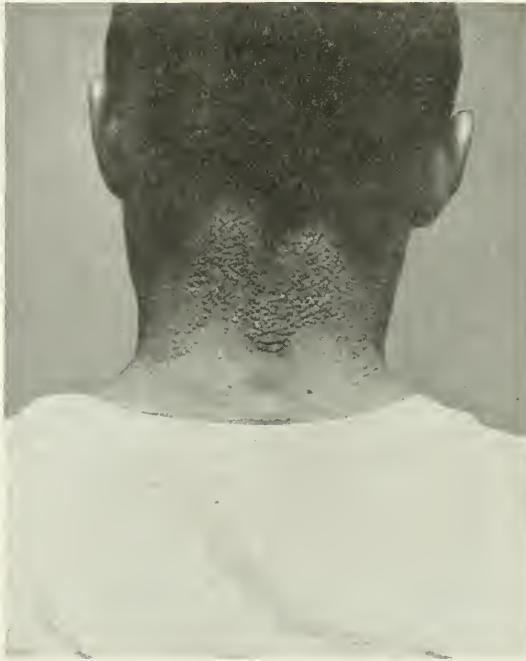


FIG. 2.—Papules on a favorite site.



FIG. 3.—Plantar lichen ruber resembling eczema.

but only to relapse, and, as a consequence of this, its clinical

appearance varies greatly at different times and often upon



FIG. 4.—Lichen ruber resembling ichthyosis.



FIG. 5.—Lichen ruber resembling psoriasis.

various portions of the body. Three stages or clinical forms

of the eruption may be conveniently described as the papular, squamous, and rugous forms of the disease.

In the papular form of lichen ruber (Figs. 1 and 2) the lesions are small, usually acuminate, and often tipped with a minute white scale. When of recent development they produce an appearance quite similar to *cutis anserina* or follicular keratosis. Upon the dorsum of the fingers there is often noted a group of follicles plugged with blackened epidermic scales, while upon the palms and soles a scaly condition is usually present, closely



FIG. 6.—Rugous form of lichen ruber.

resembling a chronic squamous eczema (Fig. 3). The papules often increase rapidly in number upon certain portions of the body, become flattened and scaly as they coalesce, and now present an entirely different aspect.

In the squamous form of lichen ruber the eruption appears as white, scaly patches of varying size and form, and frequently bears a strong resemblance to ichthyosis (Fig. 4) or psoriasis (Fig. 5). The eruption in this stage shows a marked tendency to occur in elongated, spindle-shaped, or band-like patches.

At the margin of these squamous patches numerous isolated, white-tipped papular lesions may frequently be seen. The scalp is generally affected when the disease has existed for some time, and the face often presents an appearance suggestive of ichthyosis.

In the rugous form or stage of the disease the affected portions of skin present a dull-red, leathery appearance, with slight scaling and deep parallel furrows (see Plate and Fig. 6). Upon the hands the skin sometimes becomes shrivelled and drawn to an extent which seriously interferes with the motion of the fingers (Fig. 7), while the nails show marked evidence of malnutrition. In some cases nodular ridges are found at the bend



FIG. 7.—Chronic form of disease.

of the elbow, upon the pubes, and elsewhere, and present a moniliform or bead-like appearance (Fig. 8).

Itching is commonly present, and often very severe and annoying in advanced cases, and an exacerbation of the eruption is frequently preceded by an intense burning sensation.

The prognosis in lichen ruber is an unfavorable one. Although the disease may yield to judicious treatment, and even improve spontaneously, a long series of relapses may be looked for, and a fatal termination be predicted in many cases. The reported cure of cases by French and German writers may be readily explained by their belief in the identity of lichen ruber and lichen planus.

From what has been said it is evident that the treatment of this disease must of necessity be palliative rather than curative. The improvement of the patient's general health by a hygienic and tonic regimen will usually accomplish more than the administration of arsenic or any other drug. Meanwhile the comfort of the patient can be greatly increased by baths and inunctions tending to soften the dry, harsh skin and to lessen the pruritus.

Lichen planus is a disease which is entirely distinct in nature



FIG. 8.—Moniliform lichen ruber.

from lichen ruber, although the two affections have been considered as clinical forms of the same disease by many European writers. This erroneous view has led to considerable confusion in dermatological literature. The typical lesions of lichen planus are small, flattened, angular papules with a shining surface and a minute central depression. Those of lichen ruber, on the other hand, are usually acuminate, although in rare cases they may appear flattened and smooth. The eruption in lichen planus commonly presents a purplish or lilac hue, which is very

characteristic and often serves as an excellent basis of diagnosis. The lesions are at first discrete, but show a marked tendency to coalesce and form irregular or reticulate patches of varying



FIG. 9.—Lichen planus.

size. The most common site of the eruption is upon the anterior aspect of the forearm and next upon the lower extremities. It is often seen around the waist and sometimes upon the



FIG. 10.—Lichen planus.

genitals. In exceptional cases the greater portion of the trunk may be affected, and such cases are very apt to be confounded with lichen ruber. Upon the legs the patches are frequently

roughened and pigmented, and present an appearance quite unlike the eruption seen upon the trunk and forearms.

Lichen planus runs a variable course, some cases disappearing spontaneously and often unexpectedly after an existence of a month or two, while others will sometimes persist for many months in spite of the most approved method of treatment. The itching is often very annoying to the patient, but the general health is usually unimpaired, and, unlike lichen ruber, the disease never terminates fatally.

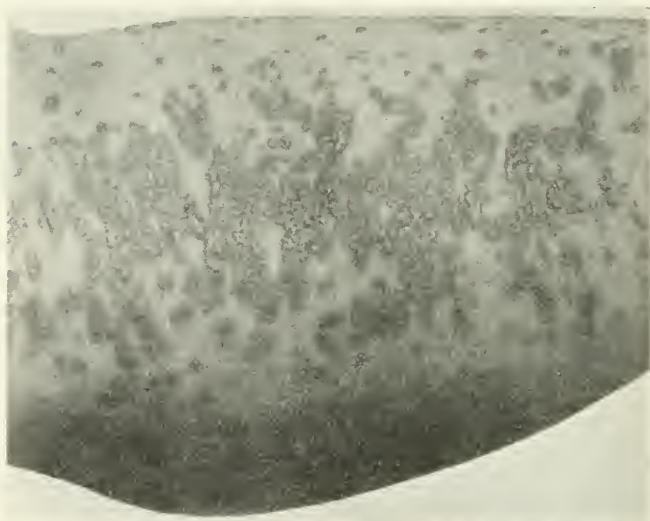


FIG. 11.—Lichen planus.

In the treatment of lichen planus arsenic is often of service, but in this, as in many other affections, it may do harm as well as good ; and when there is much irritability of the skin alkaline remedies will be found to be of much greater service. Of the various local remedies which have been highly recommended no one seems to have any special value in all cases. A mild carbolic or salicylic acid lotion may be advantageously used in acute cases, and the same increased in strength when the patches have assumed a chronic character.

18 EAST THIRTY-FIRST STREET.

A METHOD OF PREVENTING VAGINAL PROLAPSE
FOLLOWING ABDOMINAL HYSTERECTOMY.

BY

J. M. BALDY, M.D.,

Professor of Gynecology in the Philadelphia Polyclinic ; Surgeon to the Gynecean
Hospital ; Gynecologist to the Pennsylvania Hospital,
Philadelphia, Pa.

(With three illustrations.)

VAGINAL prolapse (or hernia) following hysterectomy has during the past few years been noted and reported in several instances, and it seems not improbable that such untoward sequences will be more and more frequently noted in the future as the ultimate results of this operation as performed during the past few years are gradually gleaned. The fact that this complication is beginning to be observed is by no means surprising when the anatomical relations of the pelvis are noted and compared as they exist before and after the operation. Surprise rather pertains to the past neglect in observation and expectation of this result.

Together with the uterus the broad ligaments are removed and the support which they naturally give to the vagina is lost allowing of an immediate slight dropping down of the upper part of the vagina and the ultimate greater degrees of prolapse especially if the case have tendencies in this direction. A prolapse once begun is the more rapidly produced owing to the lack of support from the broad ligaments and this loss is at times greater than the gain made by getting rid of the weight of the uterus. Whatever the cause, however (and there are many elements which go to make up this tendency) the result is not infrequently a vaginal prolapse of a greater or lesser degree. This holds good in both vaginal and abdominal hysterectomy. The question has often arisen in my mind whether or not some variation in the technique of the operation could not be devised which would meet the indications and offer a strong resistance to this tendency toward sagging. In the abdominal operation I think the solution is found and as practised by me has been so far most eminently satisfactory. This suggestion is not offered as a full and final solution of the difficulty but as a long step in the right direction with the hope that it may prove in other hands as useful as it has in my own. On February

20th, 1896. I read before the Section on Gynecology, College of Physicians of Philadelphia, a paper entitled "A New Operation for Uterine Prolapse," which paper was published in the April number of *THE AMERICAN JOURNAL OF OBSTETRICS*. A reproduction of an essential part of this article will, I think, make my further remarks on the subject the more clear:

"The narrowing of the vagina tends to prevent and obstruct the reproduction of the prolapse, the restoration of the perineum removes in great measure the original forces which brought about the uterine descent, and the hysterorrhaphy goes a great way toward furnishing a good support to the uterus and vagina

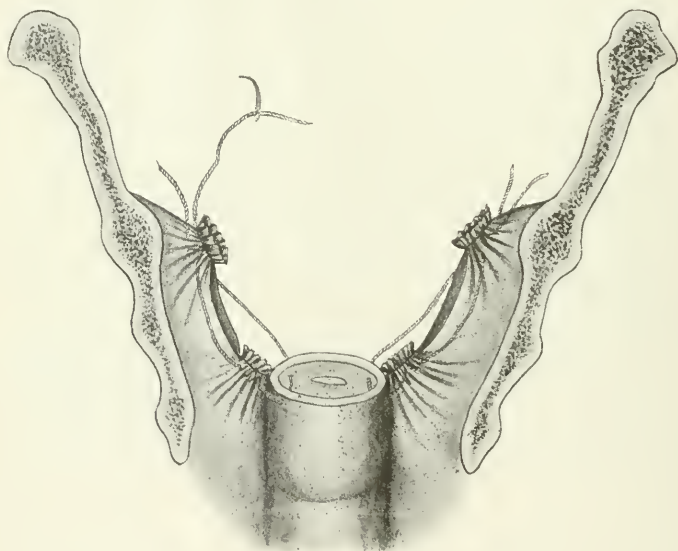


FIG. 1.

until such time as Nature may have brought about an atrophy of the over-stretched connective tissue and ligaments; and even then it continues to aid these elements in the performance of their functions. The only question remaining to be solved is: Does the hysterorrhaphy meet the indications as well as other methods? Personally I think not, and I believe the method I propose as a substitute will be found to accomplish the object with greater certainty. A glance at the accompanying diagrams will disclose what is proposed. The procedure is in all essentials an abdominal hysterectomy by amputation at or below the internal os. The points to be observed are: To include both the ovarian arteries and the round ligament in the first ligature

on each side of the uterus. To place this ligature as near the pelvic wall as possible, so as to leave but a small amount of broad ligament behind with the stump (Fig. 1). To place but one other ligature on each side of the uterus, this ligature to include the uterine artery with as little other tissue as possible; this leaves both broad ligaments open. To amputate the uterus as low on the cervix as possible. Fig. 1 shows this part of the operation completed, together with the second step—namely, the placing of the sutures. A glance at this cut shows the suture *in situ*, while a glance at Fig. 2 shows the suture tied with the parts drawn into place.

“It will be noted first that the suture is composed of heavy

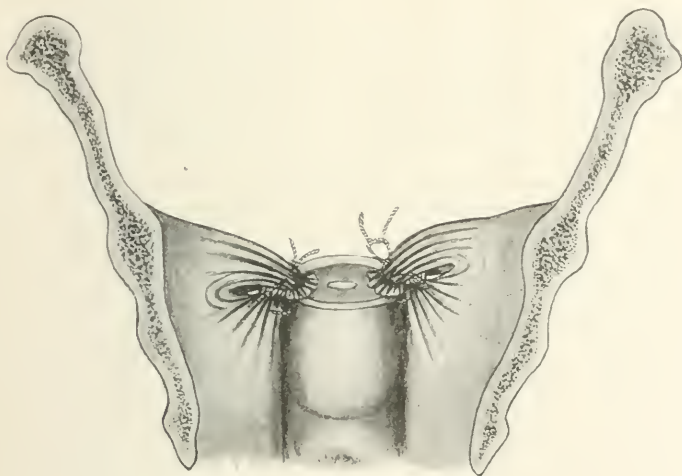


FIG. 2.

ligature silk; that in the course of its application it includes both the ovarian and uterine stumps, *deeply* placed well *back* of the ligatures. These points are important, as considerable traction occurs when the sutures are tied, and unless these precautions were taken the suture might tear out or the ligatures on the stumps become displaced.

“It will be further noted that the sutures include the sides of the cervical stump.

“It can readily be seen that the effect of tying these sutures is to lift up the stump of the cervix together with the vagina and to bring it in close approximation with the ovarian stumps, doubling the opened broad ligaments together, as shown by Fig. 2.

“Of course the portion of the broad ligament at the point of the ovarian stump will be drawn down somewhat, but the main effect is to lift to a high point the cervical stump and at the same time to drag up the vagina. Adhesions take place throughout the full extent of the doubled broad ligament, and most surprisingly firm support is given from above to the vagina.

“Fig. 3 shows the peritoneum drawn together by a continuous catgut suture over that portion of the cervical stump which remains uncovered after the two sutures are tied.

“The result of the operation is as near perfect as is possible by any operative procedure. The results accomplished are : The

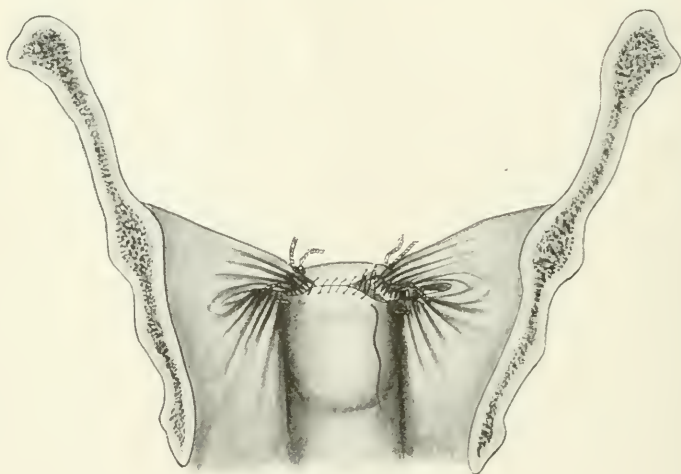


FIG. 3.

weight of the heavy uterus is removed. The over-stretched vagina is lifted high up and held firmly in place. The supports utilized are the natural supports of the uterus and upper portion of the vagina—the broad ligaments. The cervix remains a pelvic organ, as is natural to it. The immediate and remote result as regards fixation of the upper part of the vagina is perfect. No one who has not tried either to push the parts down from above or to pull them down from the vagina can fully realize the excellent amount of fixation obtained.

“Where there is a cancerous or tubercular uterus to be considered the operation can readily be modified by completely removing the cervix and (after closing the vagina by a continued whipped suture of catgut in the mucous membrane) passing the

suture through the vaginal vault instead of through the cervix."

The above operation was proposed and practised by me for *the cure* of uterine prolapse. In view of a further experience it is now recommended that this variation in the technique of supravaginal amputation of the uterus be introduced routinely for the purpose of *preventing a possible future prolapse of the vagina*. The procedure is both rational and easily carried out, and is one which I have often used and shall in future resort to with greater frequency.

My results following this operation have, since my last paper, been eminently satisfactory. In no case has there been any complication in the convalescence, and, as far as observed, the ultimate results continue to be good.

One point in the placing of the ligature is worthy of more than passing notice. Both Kelly and Penrose have written and urged that the ligatures on the ovarian arteries be placed including as little tissue, other than the artery, as possible; that a second ligature be then placed on each side about the round ligament and its vessels; and, finally, that the uterine arteries be ligated, excluding as much other tissue as possible. The result of this procedure as recommended by these and other gentlemen is six ligature stumps. In addition, the distance from each ovarian ligature stump to each uterine ligature stump is increased to a maximum, with the result of allowing the vaginal vault to sag to the lowest possible point. To my mind absolutely nothing is to be gained by this manner of placing the ligatures; on the other hand, I cannot conceive that it could be possible to adopt a more faulty method, if we are considering the future of the patient in view of possible vaginal prolapse.

Our aim in placing the sutures should be to open up as little of the broad ligament as possible; to have the vagina as high as possible after the uterus is removed; to place all possible obstacles in the way of vaginal sagging. This can be best accomplished by placing but four ligatures instead of six and making each ligature include as much tissue as is consistent with safety. The first ligature should pass through the broad ligament below the round ligament—it should include both the ovarian artery and the round ligament with its vessels. The ligature about the uterine artery should then include also as much broad-ligament tissue as possible; this can best and most safely be accomplished by tying the artery as it passes up

along the side of the cervix, and not in the base of the broad ligament as is usually recommended. If the ligature be so placed there is absolutely no danger whatever of tying the ureter, provided, of course, there is no anomaly in this organ.

The result of adopting this method of placing the ligatures is a greatly lessened distance between the ovarian ligatures and the uterine ligatures, with, of course, a greater amount of support to the vagina. If, in addition to this, the operation is finished as shown in the illustrations, no better assurance against the future production of prolapse is known to me.

1722 CHESTNUT STREET.

SHALL WE LEAVE THE UTERUS *IN SITU* IN EXCISION OF
THE ADNEXA?¹

BY

E. F. FISH, M.D.,
Milwaukee, Wis.

THE care and treatment of the female pelvic organs have received more attention during the past twenty years than any other branch of surgery. I say the past twenty years, for abdominal surgery was quite limited previous to that period. With the developments of the last decade the practice of asepticism has made it possible for many surgeons to attack the uterus and to enter the abdomen with impunity. As a sequence the female reproductive organs have bravely faced the curette, have given up ovaries and tubes, have submitted to total ablation, and are now receiving some little protection by the conservative element of the profession. With the improvement of the technique in abdominal and vaginal hysterectomy we *all* have kept our eyes on that organ, and invented an array of arguments in favor of operations that would tax the ingenuity of a Simpson or a Peaslee to answer. It is in view of this that I have deemed it proper to present this paper in defence of the uterus.

When I first went West to practise in Montana we used to refer to the pioneer as one who had killed his man ; such distinction made him a good citizen. Nowadays the gynecologist

¹ Read at the meeting of the American Association of Obstetricians and Gynecologists, at Richmond, Va., September 22d, 1896.

who has not removed, both by vaginal and abdominal section, a list of uteri cannot hope to receive recognition. But the time is at hand when we should at least curtail this practice. The man who can successfully repair a badly lacerated cervix or perineum is of far more value to humanity than one who sleeps on his guns, at all times ready for a uterotomy or an exploratory celiotomy.

He who argues that with the tubes and ovaries removed the uterus has no function and should also be excised is theoretically correct. I say theoretically, because practically I think he is wrong. For a long time I was an ardent advocate of the theoretical, basing my arguments on the ground that taking the uterus along with the adnexa precluded carcinoma, malignant disease, and prolapse, and avoided the necessity of atrophic change. While all this is true, the chances of destructive disease engrafting itself on the non-pathologic uterus is *nil*, and I cannot conceive of any valid argument for removing a normal uterus because its tributaries are effaced. I fancy I hear some one say, "The uterus is pathologic in nearly all these cases." This, I admit, is in a measure true, and if it is diseased to such an extent that grave doubts arise as to its yielding to treatment, then I am decidedly in favor of taking it along with the ovaries and oviducts. On the other hand, when the pathologic condition is such that the microscope is required to demonstrate it, and when a little local treatment will successfully aid it to resume its normal state, I am in favor of leaving it. The uterus is not alone a cradle for the growing fetus, but is, in addition, a part of a woman's make-up, and, being of erectile tissue, is as well an organ of copulation as of reproduction. I do not believe that a woman ever became insane from the mere loss of any or all the organs of reproduction. It is not the loss, but the knowledge of the loss, which may lead to mental depression and insanity. This is plainly exemplified in our everyday worldly transactions. Men become insane brooding over the loss of position, fortune, their wives and families. The concentration of the mind on that one gloomy subject leads to an unbalanced condition. Therefore I repeat that women from whom all the reproductive organs have been excised, realizing their condition and brooding over the strained family relations which are likely to result, sometimes terminate their existence or become subjects for the asylum. The world is full of surgeons and gynecologists. The aim of the surgeon is to do all kinds of surgery (and it may be said to his credit that he

generally lives up to the rule never to mutilate or remove more than is absolutely necessary), and both surgeon and gynecologist, in their early struggles for recognition, strive for an opportunity to do a hysterectomy. This leads to some very "bold work." Would that the ethics of the profession permitted me to illustrate my definition of "bold work"! It is often a simple matter to destroy the pelvic organs; it is impossible to replace them. I am not trying to argue in favor of leaving a degenerated uterus. On the contrary, I am in doubt as to the advisability of excision of the adnexa for hysterofibromyomata. This procedure, in my judgment, is only applicable for the small interstitial fibroma, which causes hemorrhage and does not produce symptoms of pressure. The ligation of the uterine arteries as advised by Martin, and ovarian arteries and utero-ovarian anastomosis as advised by Robinson, certainly have their places. I believe that both operations have prolonged many lives and restored otherwise hopeless cases to comparative health. Women almost completely exhausted by long-continued hemorrhage due to the presence of these tumors, and unable to withstand the shock of a more radical operation, have been miraculously restored to apparent health and, judging from reports, absolutely cured by both methods. I do not consider either method suitable for large tumors, fibromata, or cystofibromata, because of the danger of venous stasis, necrosis, or embolism, nor is Martin's operation suitable where the uterus is drawn high in the pelvis.

Myomectomy is a procedure which I consider of great value for certain of these benign neoplasms. When too much of the uterus is not involved it should be done. While it is most applicable to the subperitoneal variety, it is not inapplicable to the interstitial, even if we have to enter the triangle of the uterus. Personally I am not in favor of castration, as first recommended and done by Trenholm, Hegar, and Tait, and still recommended by Hegar for nearly all forms of fibromata; nor of Martin's nor of Robinson's operation, except under extreme conditions; nor of any other operation which aims to leave the growth within the pelvis. On the contrary, I believe that whenever the case is not inoperable we should resort to myomectomy or hysterectomy, because castration frequently does not induce the desired result—menstrual cessation and consequent atrophy—because of the possibility of necrosis or embolism, and because of the tendency to malignant degeneration. I am also in favor of early operation while the neoplasm is still

benign. If we wait until rapid growth begins we have waited too long, for I believe that already destructive change has taken place. The tendency to recur satisfies me that delay is often fatal, for when these neoplasms do recur they come in the form of the spindle-celled sarcoma.

In cases of pyosalpinx we are often enabled to save the uterus by abdominal section. We can thus obtain a clear view of the condition and avoid a hysterectomy when the pus is confined outside of the uterus. When, however, there is a suppurative condition of the uterus in addition, total ablation is undoubtedly the only safe procedure. By the vaginal method it is, in most cases, necessary to sacrifice the uterus or leave everything and drain. This latter may be good practice when the pus sacs are not too high, for, if it fails to cure, the more radical operation can be done later with less danger of sepsis. I cannot agree with Schauta and Tait when they claim that the uterus must be sacrificed with the appendages in all cases of gonorrheal pyosalpinx. I am aware of the existing pathological condition in these cases, but I believe I have had good results by thorough curettement and cauterization, together with excision of the tubes and ovaries. This same statement obtains in cases of pyosalpinx of puerperal origin. Under such circumstances the suppuration is the secondary consequence of puerperal infection. In the early stages of the infection—in true septic puerperal infection—if we can diagnose the condition when limited to the uterus, such conditions as thrombo-phlebitis, necrosis, mural abscesses, etc., hysterectomy may be justifiable. The difficulty lies in the diagnosis. When once the infection has passed beyond the uterus and entered the general circulation, lymphatics, and cellular tissue and become constitutional, our only hope lies in drainage. A hysterectomy, under such circumstances, followed by recovery, is no evidence that the operation is justifiable, any more than the same procedure would be for putrid intoxication due to the presence of a septic tampon. Serum therapy is still *sub judice*. I have never had any experience with it, but am favorably impressed with some of the reports I have seen.

In the tubercular affections of the uterus and appendages I can offer no plea for protection.

Prolapsus uteri, so long treated by plastic operations on the vagina, as first advised by Emmet, conjoined with repair of tears of the perineum, amputation of the hyperplastic, lacerated, and ectropic cervix uteri, is now quite successfully relieved by

the addition of hysterorrhaphy. When, however, the prolapse is complete, drawing down the bladder and rectum and overstretching the connective tissue and serous supports, and especially when the question of future pregnancies is no longer a consideration, Baldy's method of supravaginal amputation and suturing the stumps of the broad ligament to the cervix, and thus suspending the cervix and vagina, seems to me to be a most valuable addition to our surgical resources.

The consideration of malignant disease hardly comes within the scope of this paper. While high amputation of the cervix for carcinoma may leave a healthy body and fundus, the operation is as difficult as complete hysterectomy. Cancerous nodules are often found in other parts of the uterus which are entirely independent of the cervix, and by resorting to high amputation in such cases we have not improved the condition of our patient. The possibility of the existence of such nodules is to me a sufficient warning to eschew the operation.

When, finally, we decide that the uterus must be sacrificed, various procedures are urged. Péan, Jacobs, Richelot, Ségond, *et alia*, favor the removal of the entire uterus *via* vagina when it becomes necessary to excise the appendages. Others, such as Krug and Baldy, favor abdominal section and supravaginal amputation at the internal os, while others again of the Polk school advocate complete ablation by abdominal section. I believe that the entire organ should be taken, unless the cervix is sound. I am not an advocate of the supravaginal amputation where the cervix is pathologic, for by so doing we leave the most vulnerable part of the organ. To leave an unsound cervix uteri is doubtful practice, for it is the favorite point of attack for malignant disease. Statistics show that about one-third of the cancerous affections occurring in women are in the uterus, and of these a very large percentage occur in the cervix.

My conclusions are:

1. That whenever it becomes necessary to excise the uterine adnexa, if the uterus is sound, leave it.
2. Whenever we excise the tubes and ovaries, and the uterus, though in a pathologic condition, in our judgment will yield to treatment, leave it.
3. Whenever it is necessary to do an abdominal hysterosalpingo-oöphorectomy, and the cervix is healthy, do a supravaginal amputation, as this leaves the vaginal vault intact.
4. Whenever it is necessary to do a supravaginal amputation suspend the cervix to the stumps of the broad ligaments, or anchor it to the abdominal wall, to prevent prolapsus vaginæ.

5. Whenever it is necessary to do a general ablation and the cervix uteri is unsound, take the entire organ, because of the danger of carcinoma.

6. Whenever a subserous or interstitial myoma can be removed without too great damage to the uterus, do a myomectomy and leave the organ.

7. Whenever we excise the appendages and leave the uterus ventral fixation is not an unsurgical operative conclusion.

My reasons for leaving the uterus are:

1. It helps to maintain the woman's sexual integrity.
2. It relieves the patient of much mental strain, and is a prophylaxis to neurasthenia, melancholia, and insanity.
3. It tends to maintain the family ties unstrained.
4. It obviates the possibility of vaginal hernia, cystocele, and proctocele if the perineum is normal, and delays vaginal atrophy, and, last of all, it holds up and prevents shortening of the vagina.

211 GRAND AVENUE.

THE MANAGEMENT OF LABOR COMPLICATED BY VENTROFIXATION.¹

BY

RICHARD C. NORRIS, A.M., M.D.,

Lecturer on Clinical and Operative Obstetrics, Medical Department, University of
Pennsylvania; Physician-in-charge, Preston Retreat; Gynecologist to the
Methodist Hospital; Visiting Obstetrician, Philadelphia Hospital,
Philadelphia, Pa.

(With one illustration.)

THE recent discussions of complicated labors following the fixation operations on the uterus for retrodisplacement have induced gynecologists either to abandon some of these operations or to modify their technique so that the womb may escape firm adhesion to the abdominal wall. Suspension of the uterus by a technique which avoids extensive and firm adhesions and which at the same time does not too sharply anteflex the uterus, and Alexander's operation of shortening the round ligaments, are generally thought to be free from dangers to a

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, November 19th, 1896.

subsequent pregnancy, and for this reason, at present, are the most popular operations for the cure of troublesome retrodisplacements. On these points most gynecologists agree. Little attention, however, has been given to the obstetrical side of this subject beyond a statement of the difficulties encountered and the results obtained from the varied obstetrical measures employed in individual cases.

The case whose history is presented is brought to your notice in order to record the history of a patient's second difficult labor following ventrofixation, and to invite your discussion of the proper obstetrical management of these difficult cases.

The number of cases recorded in the literature is not sufficient to warrant positive conclusions, but it indicates the need of a careful study of this subject from its obstetrical as well as its gynecological aspects.

The dystocia encountered by Mrs. A. in her first labor following the operation of ventrofixation I described as follows in *THE AMERICAN JOURNAL OF OBSTETRICS*¹: "The anterior uterine wall, fixed at the fundus by the sutures, had practically been folded on itself during its physiological hypertrophy throughout pregnancy, and now formed a tumor obstructing delivery. No presenting part was felt through the cervix. The patient was etherized and a careful examination was then made. The posterior uterine wall, which formed almost the entire uterine sac, was so thinned that the intestines, containing fecal masses, could readily be felt by the hand in the uterus. Realizing the imminent danger of rupturing the uterus, the position of the child was carefully determined. Its head was high on the left, occupying the region of the mother's spleen. The child's breech lay in a depression between the upper margin of the mass of muscle and the upper anterior uterine wall. The feet and legs were in contact with the anterior uterine wall. It was absolutely impossible, without violence, to carry my hand around the obstruction and grasp a foot or to dislodge the breech from the depression in which it was resting. Realizing the danger of rupturing the uterus, cephalic version was cautiously performed and the head was crowded between the sacral promontory and the obstructing mass of muscle. A very high application of Tarnier's forceps enabled me to deliver the child, when I discovered that the umbilical cord had been compressed between the child's head and the mass of muscle

¹ Vol. xxxii., p. 938.

above the symphysis. The infant, in consequence of this accident, perished. The patient's puerperium was normal."

Her second pregnancy, attended by much pain and discomfort, had advanced to the seventh month when she entered the Preston Retreat in labor, the membranes having ruptured before her admission. The left foot had passed through and was tightly grasped by the cervix. The hypertrophied anterior uterine wall, the rigid and thick anterior lip of the cervix, and the elevation of the cervix were present, but not to the same extent as occurred in the preceding delivery.

Fetal movements had been present until the membranes rup-



Pregnancy following ventrofixation. Labor obstructed by fixation and hypertrophy of the anterior uterine wall. A, position of buried silkworm-gut sutures; B, anterior lip of cervix; C, posterior lip of cervix.

tured, and the fetal heart sounds were audible. The contractions of the uterus were painful but ineffectual, and after six hours the buttocks had entered the cervix, which grasped the thigh so firmly that its circulation was almost obstructed. Manual efforts were made with little success to further dilate the cervix, and the child was delivered with the greatest difficulty. It was impossible to extract the head and arms without using great force, and in consequence the infant perished. Its weight was four pounds and nine ounces; the biparietal diameter measured 8 centimetres, and the occipito-frontal circumference 29 centimetres.

The frequency of difficult labors following ventro- or vaginofixation, the varied mechanical obstructions encountered, and the results for the mother and child have been carefully studied by Dorland in a very valuable statistical paper,¹ in which he analyzed 179 cases of pregnancy following ventrofixation. From his paper the following percentages are taken : In 67 per cent of the cases gestation was normal ; in 62 per cent labor was uncomplicated ; in 38 per cent both pregnancy and labor were normal. In 22 cases (12.29 per cent) difficulties in parturition occurred, which required version 9 times, forceps 11 times, Cesarean section 3 times, and gave in the total 179 cases a maternal mortality of 1.11 per cent and a fetal mortality of 17.87 per cent.

These statistics and my experience with two cases have induced me to invite your discussion on the obstetrical management of labor thus obstructed, and for that purpose to briefly offer a few suggestions on that subject.

So soon as pregnancy is recognized in a patient who has undergone the operation of suspension or fixation of the uterus for retrodisplacement, it is important first to look for certain symptoms that suggest fixation of the uterus in an abnormal position. The earliest of these are excessive irritability of the bladder, dragging pain referred to the abdominal cicatrix, and excessive nausea and vomiting. The physical signs of the unfavorable fixation of the uterus are, of course, more important, and vaginal examinations, repeated at reasonable intervals, should always be made to determine the degree of elevation of the cervix, the direction of the axis of its canal, the thickness of its anterior lip and of the anterior uterine wall. Careful bimanual examinations should repeatedly note the progress of the above-mentioned changes. At a later period the recognition, by abdominal palpation, of a malpresentation will further indicate a difficult labor. Grave difficulties during labor may be predicted in proportion to the thickness of the anterior uterine wall and of the anterior lip of the cervix, and to the extent the cervix is drawn upward and backward. The more nearly its axis points toward or above the sacral promontory the greater will be the mechanical obstruction to delivery, since the unyielding mass of muscle lies at the pelvic brim, offering serious obstruction to the advance of the child, favors a faulty presentation and prolapse of the umbilical cord, and prevents the normal mechanism of dilatation of the lower uterine segment.

¹ University Medical Magazine, December, 1896.

The dilatation of the lower segment of the uterus and cervix fails because the longitudinal fibres of the anterior uterine wall are imprisoned while those of the posterior uterine wall are over-stretched, and neither the one nor the other is capable of drawing upward and dilating the cervix. Having recognized that the above-mentioned anatomical changes are present in any case to a marked degree, it becomes an important question to decide whether it is justifiable to permit such a case to proceed to term or to induce labor, regardless of the viability of the child, before the obstruction is serious and when a small and yielding head may be readily extracted. To help decide this question let us consider the measures that have been resorted to in such cases at term, their dangers to the mother, and the proportion of the children saved.

In Dorland's table of 179 cases there were 15 abortions and 10 miscarriages or premature labors and 22 cases of complicated labors. Reviewing the abstracted reports of 29 cases of complicated labors, including vagino- and ventral-fixation, that he was able to find in current literature, I have analyzed these cases to determine the results of the obstetrical operations employed : version was performed 9 times, 3 children died ; forceps was used 11 times, 3 children died ; Cesarean section was resorted to 6 times, 3 mothers and 3 children died ; craniotomy destroyed 1 child ; 1 child died after a breech extraction, and 1 mother perished with a retained dead fetus ; maternal mortality, 14 per cent ; fetal mortality, 58 per cent.

This exceedingly high mortality, greater for the child than that of eclampsia, and for the mother surpassing that of Cesarean section, leaves little doubt, when repeated examinations show a progressing and grave mechanical difficulty, that the safe course lies in the termination of pregnancy before the obstruction has gained insurmountable proportions.

When the patient has arrived at term with the anterior wall of the womb fixed and the cervix anatomically displaced and thickened, the case should at once be recognized as gravely complicated. Faulty position of the child, especially a transverse position, prolapse of the cord, uterine inertia or at least ineffectual pains, and the dangers of uterine rupture should be anticipated. The two labors following ventrofixation that the writer has observed were especially characterized by the inability of the uterus to effect dilatation of the cervix. When the cervix is sufficiently low in the pelvis to permit efforts at dilatation they should be resorted to at once by manual or

instrumental means; and, these failing, as they often will, it would seem justifiable to freely incise the cervix to accomplish rapid delivery, after which the incisions should carefully be closed by sutures.

It may be objected that serious hemorrhage is likely to follow free incision of the hypertrophied lip of the cervix; but it must be remembered that the imprisoned and thickened anterior uterine wall and cervix are compact, their blood sinuses are therefore compressed and cannot attain the size normally found in the uterine muscle. This theoretical explanation of slight hemorrhage following incisions of the cervix is substantiated by four cases in which such incisions were made. Dührssen¹ incised the cervix freely before applying the forceps, and Ruhl² found it necessary in one case to incise the cervix to deliver the child, even after performing craniotomy, and in another case it was necessary to make an incision in the cervix eight centimetres in length to effect delivery with forceps.

Strassmann³ refers to a case in which the os was incised to complete a successful delivery after version. In these four cases the bleeding was slight and readily controlled.

The cervix in some cases, especially where vaginofixation has been employed, will be drawn upward so high that manipulation, either for dilatation or for incision, and subsequent suturing are impossible, and in such cases Cesarean section would seem the only alternative.

An imperative rule to be observed in the management of labor seriously obstructed by ventral- or vaginofixation of the uterus is that assistance must not be delayed. There are but two alternatives—either to open the cervix sufficiently to extract the child or to deliver through an abdominal incision. A fibroid tumor, situated in the lower segment of the uterus and obstructing the pelvic inlet, very often, as labor progresses, will be drawn upward and out of the way of the presenting part. The longitudinal fibres of the uterus in these cases are free to act, but the conditions are different when the mass of thickened muscle is anchored by sutures, as happens when labor is obstructed by ventrofixation. In the latter case the longitudinal fibres are imprisoned and cannot act, and in consequence of this fact Nature is unable to remove the obstruction

¹ Berliner Klinische Wochenschrift, Nos. 13 and 14, March 30th and April 6th, 1896.

² Centralblatt für Gynakologie, No. 6, February 8th, 1896.

³ Berliner Klinische Wochenschrift, No. 29, 1894.

or to dilate the cervix. It is the writer's opinion that early assistance is required and that the degree of elevation of the cervix, permitting or preventing the manipulation necessary to obtain dilatation, will determine whether the child should promptly be delivered through the natural passage or through an abdominal incision.

In view of the serious character of labor complicated by ventro- or vaginofixation, another question that presents itself is the advisability of attempting to loosen the uterus from firm adhesions when these follow an operation performed upon a woman likely to conceive. Or when pregnancy has occurred and the fixation of the womb indicates the probability of a complicated labor, would it not be justifiable to free the womb from adhesions, opening the abdomen for this purpose if necessary?

In order to save my patient from a third difficult labor I attempted in her early puerperal period to practise massage, with the hope that the adhesions could thus be partly removed, but a rise of temperature made me desist. It is possible that during an interval between pregnancies massage may free the uterus.

The topics I would present for your discussion are:

1. The technique of ventrofixation least likely to interfere with subsequent pregnancy and labor.
2. The advisability of attempting to overcome firm adhesions of the uterus following ventrofixation, and the appropriate time and method to accomplish such release of the adherent uterus.
3. The best means to determine probable dystocia and the proper treatment to be employed either during pregnancy or at term.

TECHNIQUE OF CESAREAN SECTION.¹

BY

BARTON COOKE HIRST, M.D.,
Philadelphia, Pa.

CESAREAN section, like the operations of tracheotomy and herniotomy, may be forced on the general practitioner in an emergency at any moment. But the exigency requiring a Cesarean section will be rare, occurring only once perhaps in

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, November 19th, 1896.

the course of a general practitioner's career. He will be, therefore, without personal experience in the technique of the operation, and must seek guidance, if he has time to prepare himself at all, from the works on obstetrics at his command. Judging from the memory of my own early experience, the information contained in such books is far from satisfactory to the beginner, who needs a clear-cut, sharply-defined line of action laid down for him, as he lacks the ability, founded on experience, to choose between several plans of procedure, each with its enthusiastic advocates.

From a personal experience, unusually large in America, of fourteen Cesarean sections, in which I have tested every method proposed by modern operators, I have settled down in the past three years to a technique which has proved so satisfactory in the operation itself and in its results that, as far as I see now, I shall cling to it indefinitely.

It has occurred to me that a detailed description of this technique, uncomplicated by a discussion of the merits of other plans of operating, might be of value to some of the readers of our Transactions.

If there is time to make the best arrangements the Cesarean section should be performed at a convenient hour of an appointed day, like any other abdominal section. A period about two weeks or ten days before term should be selected. It is unnecessary to excite labor pains beforehand or to secure any degree of dilatation of the os. The preparation of the patient herself is like that for any abdominal section. For the guidance of the inexperienced I append a description of the rules in force in this respect in my gynecological clinic at the Howard Hospital.

PREPARATION FOR AN ABDOMINAL SECTION.—Give patient on admission a full hot bath. Have the patient kept in bed from the time she enters the hospital until the operation is performed. Administer pill: strychnia gr. $\frac{1}{20}$, digitalis gr. $\frac{1}{2}$, quinine grs. 2 t. i. d. before operation. Secure movements of bowels by 2 drachms Rochelle salt every evening. Have the heart and lungs examined. Examine urine.

Day before Operation, Diet: Gruel for breakfast, soup for dinner, milk toast for supper, one glass of milk 10 A.M., 4 P.M., 9 P.M.

Medicine: 5 P.M., afternoon before operation, 10 grains sulfonal in half-glass of boiling water, cooled down to temperature that permits of its being drunk, if patient is nervous and has

been sleepless. 9 P.M., half-ounce of Epsom salt in a tumblerful of water.

Evening before, first cleansing of the abdomen, as follows :

Cleansing: 1. Sterilize the following articles for twenty minutes at 240° ¹: soft bristle brush; absorbent cotton: one-half dozen towels; gauze, unmedicated; binder; long gown.

2. The resident physician, or, under his supervision, the nurse who cleanses the abdomen, must prepare his or her hands and arms as though about to operate, namely: remove rings; scrub with brush, hot water, and tincture of green soap for ten minutes; clean nails with nail file; scrub hands and arms with benzine and then with alcohol; immerse hands and arms in bichloride solution (1:1000) for two minutes. Then put on the gown.

3. The abdomen, from ensiform to symphysis and from flank to flank, must be scrubbed with soft bristle brush, tincture of green soap, and hot water thoroughly (for at least ten minutes), paying special attention to navel and to pubic regions. Wipe off the razor with cotton and alcohol. Shave pubis, then scrub thoroughly with alcohol. Cover the abdomen with the sterile gauze, and put on the binder.

Morning of the Operation: Give cup of beef tea at 7 A.M. Hands of nurse or the doctor cleansed as described above. Articles re-sterilized as described above. Same cleansing of abdomen repeated as described above, but in addition: before alcohol scrubbing, scrub abdomen with benzine; wring out a sterile towel in 1:1000 bichloride solution, and cover the abdomen with the towel; put over it a thick layer of sterile cotton; apply binder. Catheterize the woman just before anesthetization with sterile glass catheter in aseptic manner. Give vaginal douche, 1 quart of 1:4000 solution, followed by a little sterile water. If bowels have not opened freely give enema—a pint of soapsuds and one drachm of turpentine.

THE OPERATION.—With a large scalpel held firmly in the full hand a free incision is made from two inches above the umbilicus to just above the symphysis. This incision may be carried entirely through the abdominal wall in its upper part, as the intestines are out of the way. The abdominal opening is enlarged with scissors downward as low as possible. An assistant makes the wound gape while the operator delivers the womb from the abdominal cavity. The assistant then

¹ In the absence of an autoclave sterilizer an Arnold steam sterilizer will do.

approximates the edges of the abdominal wound as closely as possible around and above the cervix, at the same time squeezing the latter with his outspread hands. With a few rapid but light strokes of the knife the operator makes an incision an inch in length through the uterine muscle, but not through the membranes, so as not to cut the child. Then with one rapid movement of the left hand and arm the uterine wall is torn down to the internal os, the membranes are ruptured, the placenta, if in the way, is detached and pushed aside, the child is seized by the most accessible part—shoulder or leg—is delivered, and, with the placenta still attached to it, is dropped into a sterile sheet spread out over the outstretched arms of an assistant who stands directly at one's left hand, and whose duty it is to revive the child, if asphyxiated, and to tie and cut the cord. Up to this point the operation rarely requires seventy-five seconds. Then follows an easy hysterectomy : ligation of the ovarian arteries and of the arteries of the round ligaments ; application of clamps ; cutting of the broad ligaments ; preparation of peritoneal flaps ; amputation of the womb ; ligation of the uterine arteries, and oversewing of the stump, which is dropped.

The abdominal wall may be closed by close-set interrupted stitches—the easiest plan for a beginner—or by any other method that a more experienced operator may prefer.

A LARGE OVARIAN CYST-ADENOMA,
AND A REPORT OF A CASE OF VENTROFIXATION DONE THE SECOND TIME.

BY

F. T. MERIWETHER, M.D.,
U. S. Army (retired), Asheville, N. C.

CASE.—Mrs. D., age 36 years; married twelve years; IIIpara, the oldest child being 11 years old, the youngest 18 months. For the past six years her health has been failing, and during that time she has been treated for ascites due, it was thought, to some obscure disease of the liver. Sixteen months ago, two months after the birth of her last child, the supposed ascites was so great as to cause distress, and her physician tapped her, drawing off about three and a half gallons of an amber-colored fluid. She filled up again and was tapped four months later,

then again six months later, each time getting from four to five gallons of fluid. About the middle of August, 1896, she was again tapped, but owing to the thickness of the fluid only about a gallon was drawn. The fluid had been noticed to have been getting thicker at each tapping. Patient had menstruated in May, 1896, the first and only time since the birth of her last child. Her feet and legs had been more or less swollen for the past year. Pain has been complained of, most marked under the angle of the right scapula. I saw her first September 6th, 1896. She was then complaining of great dyspnea and of the pain under the scapula. She could not lie down because of the interference with her respiration. Her entire abdomen was filled with the tumor mass, dulness on percussion being noticeable over the entire abdomen, no resonance being obtainable anywhere in any position. The umbilicus was flat, in fact sunken, and very much distended and spread apart. It did not pout, as is usual in ascites. The patient, upon careful questioning, said she thought the swelling commenced low down in the right iliac fossa before it became general, but she was uncertain about it. In the right iliac fossa could be felt a solid mass about three inches in diameter, hard and somewhat nodular. In the right hypochondrium, three inches below the ribs, was another hard, nodular mass about five inches in diameter, and in the left iliac fossa and above it, three inches from the umbilicus, were two other tumors of the same characteristics, each about three inches in diameter. These solid masses were freely movable, while over the abdomen fluctuation was marked. The examination by the vagina revealed only a partially fixed uterus, there being no bulging in the vault. Pulse 100, temperature $98\frac{1}{2}^{\circ}$.

I operated September 8th, 1896, assisted by Drs. Baird and Fletcher, chloroform being used as an anesthetic. Before operating I tapped the cyst and drew off about three gallons of fluid which was highly albuminous. After getting into the abdomen several omental adhesions were found, only one of which, however, required ligation, the others being separated with but little hemorrhage. The cyst was seen to be intraligamentous, and an attempt was made to split the peritoneum and to shell out the tumor, but it was so very adherent and the hemorrhage was so profuse that I feared to consume the time necessary to complete this procedure, so I tied down the side of the uterus, across the broad ligament, and then up the side of the pelvis, using chain ligatures. The oozing was very

profuse, and I consumed some time in attempting to stop it with hot-water compresses. It was useless to attempt to clamp or tie anything, so I packed the cavity with sterile gauze, after Mikulicz, using strips to fill in the gauze sac. The right ovary was atrophied and cirrhotic. In closing the incision I used four silkworm-gut sutures above the gauze, passing them through and through, and tying. Three other silkworm-gut sutures were passed through and through, but were left untied. The incision was dressed with sterile gauze and cotton. The patient reacted well and was perfectly conscious half an hour after removal to her bed. Time of operation, one hour and ten minutes, a good deal of which time was spent in attempting to stop the hemorrhage. The estimated weight of the tumor and fluid was forty-five pounds. Six hours after the operation the pulse was 90 and good, temperature normal. The urine was drawn with a catheter for three days. The temperature went to $99\frac{1}{2}^{\circ}$ eighteen hours after operation, but was normal in thirty-six hours. I removed the gauze forty-eight hours after operation, under chloroform. There had been quite a large amount of bloody serum drained by the gauze and staining the dressings through. Before removing the gauze I had prepared my hands as for operation, using, as I always do, the permanganate of potassium and oxalic acid; and it was very fortunate I had done so, for the gauze was so very adherent that I had to go into the pelvic cavity with my finger to peel the adhesions off. The provisional sutures were then tied and the wound redressed with sterile gauze. No pain complained of except under the right scapula.

September 11th: Patient has been spitting up a little blood occasionally; marked pain under the right scapula. I attempted to give her magnesia sulphate in one-drachm doses, but she could not retain it. The bowels moved slightly from an enema. September 12th: Gave calomel, one-fifth of a grain every hour until twelve tablets had been taken, when, as the bowels had not moved, she was given an enema which produced a large movement. September 13th: Spitting blood and still complaining of pain under the right scapula. She has taken quite a good deal of nourishment. Temperature normal, pulse 76. September 16th: The sutures were removed. A little suppuration of the two lower stitch holes, but union was perfect above; no rise of temperature. The skin of the abdomen was very lax and wrinkled, falling into folds and cavities almost impossible to keep clean. September 18th: A few drops of pus from the

two lower stitch holes, and a slight separation of the lower half-inch of the incision. After eating some stewed fruit her bowels moved twelve or fifteen times, the stools being solid and hard and causing great pain. This was probably the first time the intestines had been cleaned out thoroughly. Tongue clean and patient feels strong and comfortable.

Upon September 20th the patient's temperature went to 100.5°, pulse 80; a very slight suppuration of lower half-inch of incision, probably about a drachm of bloody pus, since last dressing two days before; pain complained of in left leg, particularly in calf. Upon examination I found a phlebitis, the leg quite tender and swollen, and the femoral vein hard and filled with a thrombus. Just above the left knee was an abscess which patient said was caused by a hypodermatic injection given several weeks before. To this I attributed the phlebitis. The temperature stayed up for a week, but finally dropped to normal. The leg caused her considerable pain for about three weeks, but at that time she could use it fairly well. The abdominal incision, where it had supplicated, healed over nicely, it never being anything but a cutaneous suppuration, due, no doubt, to the great difficulty of keeping the skin clean. The patient was discharged upon October 18th.

The tumor was sent to the Army Medical Museum, and through their kindness I am enabled to report the following:

“Gross appearance: Large cyst with a tough fibrous wall, covered on the outer surface with a layer of peritoneum, and on its inner surface with a smooth, velvety membrane. Numerous masses, varying in size from that of two fists to a walnut, project from the wall of the cyst into its cavity. The wall also shows still smaller cystic sacs, containing clear fluid, upon its inner surface. The larger masses are tense, fluctuating, and lobulated from constricting bands of fibrous tissue which bind them down. Incision into the larger masses from the outer surface through the sac wall shows a loose-meshed, fibrous stroma, in the spaces of which are a semi-transparent, mucilaginous fluid which flows freely and a yellowish, myxoid material that is not easily removed. The microscopical examination shows dense bands of fibrous stroma, in places rich in cells, which radiate in various directions, enclosing numerous acini. These are lined with a high columnar epithelium, the cells of which are nearly everywhere distended with a clear, mucoid material. Numerous papilliferous projections spring from the walls of the acini, and by branching serve to fill more or less completely the latter. In addition, in some acini there are to be seen desquamated and necrotic epithelial cells mixed with a

homogeneous albuminous material. I think the tumor may be designated as a papilliferous cyst-adenoma of the ovary.

(Signed) "WALTER REED,
"Surgeon U. S. Army."

CASE XXXI.—The following case is of some interest, showing, I think, the inability of a ventrofixation to keep the uterus up in a case of prolapsus, unless operative measures are adopted to correct, in a measure, the relaxed condition of the floor of the pelvis.

History.—Age, 20 years; unmarried, but had a child when 13 years of age; menstruated first when 12 years old. Six years ago she noticed the protrusion of the uterus from the vagina. It gradually descended lower, but with pessaries and supports of various kinds and local treatment she says she was fairly comfortable. During the fall of 1895 a ventrofixation was done by an excellent gynecologist of this city, but after six months the uterus reappeared at the vulva. When I saw her there was a protrusion of two inches, which could easily be replaced. The cervix was only slightly elongated, and there was no erosion of the mucous membrane. There was a lacerated perineum with a rectocele and cystocele, and general relaxed condition of the walls of the vagina. When the uterus was down the broad and utero-sacral ligaments could be felt like cords in the vaginal vault, giving no support whatever to the uterus. Some little pain was complained of during menstruation, but the prolapsus did not worry the patient as long as she kept fairly quiet. The uterus was freely movable and slightly enlarged.

I operated September 26th, 1896, assisted by Drs. Reynolds, Baird, and Minor, Drs. Brownson, Van Horn, and Morris being also present. An incision was made half an inch to the right of the old cicatrix, going through the muscle. The result of the previous operation was shown by two delicate, thin, and cord-like bands extending from the fundus uteri to the old incision. One of the bands was round and about one-eighth of an inch in diameter; the other was flat, about half an inch broad, and hardly a sixteenth of an inch in thickness. Apparently they consisted only of peritoneum. I used two silkworm-gut sutures, and with each I took a deep bite in the muscle of the uterus, bringing the needle out about an inch from its insertion, and then passing them an inch on either side of the incision, including in the suture the fascia and a portion of the

muscle. The abdomen was closed with through-and-through silkworm-gut sutures, which were removed upon the tenth day, when union was found perfect.

Upon October 8th I did an operation upon the anterior wall and a modified Emmet upon the posterior wall. The woman has been doing heavy work since, though I warned her against it for a while, and says she can lift heavy articles without discomfort, and examination shows no signs of a recurrence. It was evident that the previous suspension sutures had only included the peritoneum of the uterus and only a small part of the abdominal peritoneum ; and the ligaments being so relaxed, with no support below, the uterus simply pulled these attachments into these thin cords.

CORRESPONDENCE.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—In looking over my paper in the October number of THE AMERICAN JOURNAL OF OBSTETRICS I regret to find that credit was not given to Dr. E. Doyen, of Reims, France, for nine of the illustrations, and to Dr. Edgar Garceau, of Boston, for Fig. 3.

I have the honor to be personally acquainted with both of these gentlemen, and feel somewhat keenly the unenviable position in which I am placed by this oversight.

Dr. Garceau was one of the first to publish an illustrated description in this country of vaginal hysterectomy by the clamp method, and very kindly gave me permission to make use of his cuts.

In my original notes I find a footnote properly crediting the illustrations, which must have been left out by the typewriter who copied them.

Will you do me the kindness to publish my regret at this unintentional oversight, in your next issue ?

And believe me, with thanks in advance,

Very sincerely,

B. SHERWOOD DUNN.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, November 19th, 1896.

B. C. HIRST, M.D., *in the Chair.*

DR. C. B. PENROSE read the report of

AN ENORMOUS FIBROID TUMOR OF THE UTERUS.

F. B., age 39; married twenty-two years; IIIpara. Menstrual history: Began at 14; duration five to six days; painful. Menses regular until 1894, when she began to suffer with profuse bleeding and leucorrhea. She first noticed a tumor in the abdomen, about the size of a duck egg, sixteen years ago. This tumor increased very slowly until four years ago, when it began rapidly to enlarge. The growth had been painless until the rapid increase in size began. Since then she has suffered continually with abdominal pain. At present she complains of backache and disability produced by the enormous size of the tumor. The following condition was found upon her admission to the hospital, October 13th, 1896: General appearance good; weight, 204 pounds; bowels regular; appetite and digestion good; urination normal; urine, specific gravity 1016, normal. Physical examination showed the large tumor seen in the accompanying illustration. When the woman stood erect the lowest portion of the tumor reached to the knees. The circumference of the abdomen was 54 inches in the recumbent posture, 58½ in the erect. The boss or knob shown in the illustration at the position of the umbilicus consisted of a subperitoneal fibroid which had made its way through the umbilical ring. The diagnosis of edematous fibroid tumor of the uterus was made, and celiotomy was performed October 17th, 1896. The tumor was found to consist of a number of large lobes which had become closely pressed and fitted together. The omentum was adherent over the upper portion of the tumor. The tumor had developed between the layers of the mesocecum. The vermiform appendix had been stretched out to about seven inches in length, and with the cecum had been carried up by the growing tumor to the diaphragm. On account of the intraligamentous development of the tumor it was impossible to perform preliminary ligation of any of the pelvic vessels, except the left ovarian artery, which was easily secured. The capsule of the tumor was then incised on the right side and the mass enucleated. The right ovarian artery and the uterine arteries were secured after the tumor had been removed. The

tumor was removed in forty-five minutes. Very little blood was lost, except that which remained in the tumor. The meso-ecum was closed by suture; a gauze drain was carried through the vagina and another from the lower angle of the abdominal incision. The patient was returned to bed in good condition, pulse being 120. She died suddenly and unexpectedly, four hours after operation, from heart failure. The tumor, drained of blood, weighed 87 pounds. It proved to be an edematous



Enormous fibroid tumor of the uterus.

fibroid. The following pathological report was made by Dr. Beyea: "The specimen is a very large, edematous fibroid tumor weighing 87 pounds. Is composed of a series of nodules varying from the size of a hen's egg to an adult's head. It measures 50, 50, 52½, and 32½ centimetres in its various diameters, and apparently grew from the right anterior surface of the uterus."

The autopsy, made by Prof. Guiteras, was as follows: "Body

of a somewhat emaciated colored woman. The lower extremities are edematous, the left leg is considerably so; abdomen remarkably flaccid. There is an incision in the median line from a few inches below the ensiform to the pubes. Cloths found over the incision and the two pieces of gauze protruding from the wound are stained with bloody serum. On opening the abdomen we find the parietal peritoneum generally thickened and presenting numerous foci of hemorrhagic infiltration around two ligatures. No blood or other abnormal contents found in the abdominal cavity. The dome of the diaphragm rises to the third interspace on the left and the second interspace on the right side. Border of liver about three centimetres above the edge of the thorax. Spleen somewhat soft, of normal color, and measures $9\frac{1}{2} \times 7 \times 2\frac{1}{4}$ centimetres; weight 100 grammes; section, some prominence of the Malpighian bodies, otherwise normal. On removing several large folds of mesentery enormously distended veins with their thin walls are found; one of these had been ligated in the operation. Some of these veins open directly into the vena cava. Left suprarenal small, hard, and shows increase of connective tissue. Right kidney and ureter are in normal position; the left ureter is tortuous and distended to three times its normal size. Left kidney is soft, somewhat globular in shape, measures $10\frac{1}{2} \times 6\frac{1}{2} \times 2\frac{3}{4}$ centimetres; capsule slightly adherent, surface of organ of a pale gray color; on section the pelvis is found considerably distended and containing urine; pyramids somewhat flattened and the renal substance of a pale gray color; weighs 140 grammes. Right ureter normal; right suprarenal similar to the left. Right kidney normal in shape, pale in color; section smooth, pale gray; there is no hydronephrosis; measures $11 \times 5\frac{3}{4} \times 3$ centimetres; weighs 130 grammes. *Pelvis*: Bladder greatly thickened. Uterus absent, except a very small portion around the external os, which shows that the cervix must have undergone considerable atrophy. The vagina is cut across below the cervix on the left side, and on the right the incision is just above the external orifice of the uterine canal. *Broad ligaments*: Remnants contained in several ligatures on both sides. Liver normal in size, somewhat distorted; it is infiltrated with bile; gall bladder is full. *Heart*: Some hypertrophy of left ventricle; right side has nothing abnormal; wall of left ventricle fourteen millimetres in thickness; cavity not dilated; aortic and semilunar valves slightly thickened, but evidently sufficient; papillary muscles firm and present a whitish color toward the apices; aorta presents a few patches of atheroma; heart weighs 280 grammes. The cardiac muscle is of normal consistence and color, except in the papillary muscle where there is some evidence of fibroid change."

The interesting feature of this case is the enormous size of the tumor. Death was undoubtedly due to the sudden relief of pressure upon the vascular system.

DR. PENROSE also reported

A SPONTANEOUS RUPTURE OF AN OÖPHORITIC CYST.

E. S., white; housewife; 57 years of age; IVpara. Admitted to the University Hospital November 4th, 1896. Menstruation first appeared when she was 15 years of age, and was regular, but very painful, up to the time of the menopause nine years ago. She had always enjoyed good health, except for occasional attacks of diarrhea which had been present during the last twelve years. One year ago she noticed for the first time a tumor in the right ovarian region. It was painless and gave trouble only on account of its size. It grew progressively for five months, attaining a size equal to that found upon her present admission to the hospital. At this time, without apparent cause, she was suddenly seized with a severe lancinating pain in the right ovarian region. The pain rapidly extended throughout the whole abdomen. It continued for an hour, and was so severe that morphia was administered. Within half an hour after the onset of the pain the tumor had disappeared. About half an hour after the onset of the pain she passed involuntarily a large quantity of urine, and marked diuresis continued for four or five days. The tumor remained absent for about a month, and then reappeared and slowly developed as before up to the time of her admission to the University Hospital. On the day of admission to the hospital she had travelled in the cars about two hundred and fifty miles. She was immediately examined and the following condition found: A large, smooth, unilocular ovarian cyst filling the abdominal cavity, probably growing from the right side; uterus atrophied, pushed backward, and to the left. Fluctuation in the cyst was plainly demonstrable. No free fluid existed in the peritoneal cavity. Examination of urine: specific gravity 1020; acid; a few granular and hyaline casts; no albumin; no sugar. The abdomen measured thirty-eight inches in circumference. The patient was placed in bed, and, on account of the pressure of operative engagements, operation was postponed for a week. Upon the evening of the day of admission to the hospital she had two severe attacks of hiccough; complained of slight abdominal pain. The following morning the resident physician found her comfortable and the tumor apparently unchanged. Four days after admission she observed that the tumor was slowly diminishing in size, and in three days more it had entirely disappeared. During these seven days the patient states that she passed an abnormally large quantity of urine. The amount of urine passed was, unfortunately, not measured by the nurses. There was no disturbance whatever of temperature or pulse, and no other symptoms beyond those just described. In fact the woman did not call my attention to the change in the size of the abdomen until I was about to make an examination twenty-four hours before the time which had been set for the operation. The diagnosis of spontaneous

rupture of an ovarian cyst was so obvious that celiotomy was performed on November 13th. About two quarts of straw-colored, somewhat gelatinous fluid were found in the peritoneal cavity. The intestinal and parietal peritoneum was much congested. A collapsed right unilocular oöphoritic cyst was found and removed. At a point in the cyst wall furthest removed from the pedicle was a patch of brownish-yellow, degenerated tissue about the size of the palm of the hand. Running across this patch was an irregular rent three inches in length. The free fluid in the peritoneal cavity was removed by sponges and the abdomen closed. Convalescence has been uninterrupted. An examination of urine since operation shows that it is normal in all respects, no casts being found.

This case illustrates beautifully the symptoms of spontaneous rupture of an ovarian cyst with unirritating contents, these symptoms being: sudden onset of abdominal pain; alteration in the shape of the abdomen, with disappearance of the tumor; profuse diuresis which lasts for three or four days after the rupture. The diuresis in the present case seems to have appeared remarkably soon—within half an hour after the rupture. It seems probable that the first involuntary escape of urine may have been caused, not by absorption from the peritoneum with resulting distension of the bladder, but by the change which took place in the intra-abdominal pressure. The second rupture appears to have taken place much more slowly than the first, for the shape of the abdomen changed, not suddenly, but gradually, and the tumor disappeared gradually. It is probable that a small rent or perforation occurred in the cyst wall as a result of degeneration, and that this gradually extended. The exciting cause of the second rupture may be found in the long railroad travel and the attacks of hic-cough.

Pathological Examination of Specimen.—The specimen was a ruptured unilocular oöphoronic cyst which, when distended with water, measured 20, 17, and 12.5 centimetres in its various diameters. The outer surface was smooth, except at the site of rupture and over an area, four centimetres square, on the posterior surface, where the outer wall had apparently been broken through from over-stretching, or possibly it was the site of a previous rupture. Generally distributed over the surface were seen numerous minute punctate hemorrhages. The rupture, which is an irregular tear due to degeneration of the wall advancing from the inner surface, measured nine centimetres in length and was found at about the greatest height a distance of eighteen centimetres from the pedicle and mesosalpinx. The inner surface of the tear for a distance of generally two centimetres is composed of a brownish-yellow, degenerated tissue, the degeneration involving particularly the inner, but also the outer or fibrous wall. The inner surface of the cyst was smooth, except for two small cystic multilocular nodules, each the size of a small walnut. No degenerated tissue was seen beyond that described. The cyst completely

destroyed the paroöphoron, but the mesosalpinx and Fallopian tube were normal.

Microscopical Examination.—Microscopical sections taken from the cyst wall at the site of rupture show advanced myxomatous degeneration. The degeneration is most extensive in the tissue of the inner wall, but also partially destroys the inner half of the outer or fibrous wall. It is self-evident that rupture of this cyst resulted from this myxomatous degeneration.

DR. HIRST.—I have had two interesting experiences myself in rupture and apparent rupture of ovarian cysts. In one case I was about to operate on a large ovarian tumor. Four or five days before the time of the operation the woman complained of pain in the abdomen and developed most of the symptoms of spontaneous rupture, but the abdomen did not change in shape or size at all. When the operation was performed I found a very large dermoid cyst, which had ruptured and had discharged a part of its sebaceous contents, that had slowly oozed out into the peritoneal cavity, sticking to everything and becoming embedded in some peritoneal exudate which had been poured out in consequence of the peritoneal irritation. There was not an inch of intestines uncoated with this stuff, and the parietal peritoneum was also well covered. It was impossible to get it out. I washed the peritoneum persistently and endeavored to wipe the cyst contents away, but it was impossible to dislodge it. The tumor was removed and the abdomen closed. As I expected, the immense amount of putrescible material left behind soon began to decompose, and within twenty hours the woman was dead from septic peritonitis. The other case happened recently and I do not quite understand it yet. The woman was being prepared for the removal of an ovarian cyst the following morning. The diagnosis was easy: it was obviously a multilocular cystic tumor. In the evening, while undergoing a preparatory cleansing of the abdomen, she said she felt something burst inside of her, and immediately a large amount of water gushed apparently from the vagina, soaking the mattress and wetting the floor. The woman then expressed a desire to go to the water-closet, and there passed about an equal quantity of fluid. The portion of the fluid that it was possible to collect measured two-thirds of a gallon. It was obviously urine of a low specific gravity.

On examining the woman it was found that she still had an ovarian tumor, but that much of the abdominal swelling had subsided. She declared herself to be comfortable and free from a feeling of abdominal distension for the first time in eighteen months. The tumor was, however, still present, as verified by palpation. The following day I operated and removed an ordinary multilocular ovarian tumor with unruptured sac and with characteristic grumous contents. There was not a sign of rupture anywhere. There was no free fluid in the abdominal cavity.

The only light I obtained in this case was from the history that the woman had passed water but once in twenty-four hours

for the past eighteen months, so it looked as if there had been a urinary retention cyst somewhere along the urinary tract, which had been suddenly evacuated. My own theory is that the tumor, which had been pressing on a ureter, was displaced by the preparatory cleansing and thus set free a large quantity of urine which had been encysted.

DR. W. A. NEWMAN DORLAND introduced the subject of
GESTATIONAL COMPLICATIONS AND DYSTOCIA SUBSEQUENT TO
ANTERIOR FIXATION OF THE UTERUS.

He said that the shortening of the round ligaments by the inguinal method had not met with a degree of success proportionate to the urgency of the condition, and the percentage of failures, taken in association with the difficulties of the operation in the hands of the less skilful surgeons, was a strong incentive to the adoption of a method that offered better promise of success and at the same time was decidedly less complicated in its technique. The most radical objection that could at that time, and for a few years subsequently, be urged against the adoption of the new operation in its improved form of direct suspension was that it involved the opening of the peritoneal cavity with all of the risks attendant thereon; but the marvellous progress that had been made in abdominal antisepsis had largely annulled the force of such an objection, and the operation rapidly grew in favor with the gynecologists.

It was not long, however, before disturbing rumors began to circulate as to the pernicious influence of the method upon subsequent pregnancies and labors. While it was not true of every case, the number of reported instances of dystocia of greater or less severity offered sufficient ground for apprehension, and efforts were made by various operators throughout the world to so modify the technique of the uterine fixation as to obviate the danger of subsequent difficulty in pregnancy and parturition. Thus there has arisen a large number of methods of anterior fixation of the uterus having for their double object the restoration of the displaced organ to its normal position, without at the same time producing such a degree of fixation of the organ as to interfere materially with its functions of gestation and parturition.

These methods and modifications of methods may be conveniently classified, according to the essential principle involved in their performance, into five main groups, as follows: (1) those methods depending for the reposition of the uterus upon a shortening of the round ligaments; (2) the varieties of ventrofixation; (3) the methods of vaginofixation; (4) vesicofixation; and (5) cervicofixation, or trachelopexy. After all of these operations cases of dystocia or of troubles during gestation have been recorded.

In selecting the notes of the actual cases of dystocia and gestational disturbances that have from time to time been reported in the current medical literature, he included in his list

every instance of unusual occurrence in the patient's history that might in any way have a direct bearing upon the operation. Thus, if a woman who had previously borne children without any disturbing feature during the gestations and labors should, in a pregnancy subsequent to an operation for anterior fixation of the uterus, suffer from localized pains or exaggerated vomiting, or if at the time of labor a malpresentation be noted or some form of operative interference be required without other appreciable cause, he felt justified in assuming the relation of cause and effect and in ascribing the pathologic feature to the operative procedure. Working upon such a basis as this, he collated sixty cases of gestational and eutocic disturbances subsequent to the operation of ventrofixation alone, not to mention the numerous cases following the vaginal operation.

From this tabulation of cases it becomes very evident that the operations for anterior fixation of the uterus may result very disastrously in subsequent gestations and parturitions. Just what the percentage of abnormalities is has not as yet been decided, and it will require a vaster accumulation of facts before accurate information upon this matter can be obtained. Dorland has grouped every case, normal and otherwise, of pregnancy following ventrofixation of the uterus, the operation most generally adopted. These now number 179 instances. Of this series, in 120 cases, or 67.03 per cent, a normal gestation was noted; in 111 cases, or 62.01 per cent, labor was absolutely normal; and in 68 cases, or 37.98 per cent, there was an absolutely normal condition throughout both gestation and labor. This leaves a total of 111 cases, or 62.01 per cent, in which some abnormality was noted, either in gestation, in labor, or in both. In 16 cases, or 8.93 per cent, pain, more or less severe, was experienced in the line of the abdominal incision either during gestation or at the time of labor; in 4 cases, or 2.23 per cent, excessive vomiting was observed; in 10 cases, or 5.58 per cent, the cervix was situated far up, at or above the pelvic brim, and directed posteriorly or to one or the other side; in 9 cases, or 5.02 per cent, uterine rupture was threatened at the time of labor; uterine inertia was noted 5 times, or in 2.79 per cent of the cases of pregnancy, and 22.79 per cent of the cases of dystocia; in 15 cases, or 8.37 per cent, the patients aborted, and in 10 cases, or 5.58 per cent, there were noted miscarriages or premature labors; troubles of various kinds during gestation were noted in 15 instances, or 8.37 per cent, and difficulties at parturition in 22 cases, or 12.29 per cent; in 17 cases, or 9.49 per cent, the results of the pregnancy are not noted. In 9 cases, or 5.02 per cent, there were abnormal presentations of the fetus. These were distributed as follows: Once, or in 0.55 per cent, the ear presented; twice, or in 1.11 per cent, the breech presented; and 6 times, or in 3.35 per cent, the child lay transversely; when compared to the usual frequency of trunk presentations, about $\frac{1}{2}$ per cent, the present percentage is especially striking. Version was required in 9 instances, or 5.02 per cent of the pregnancies and 40.9 per cent

of the difficult labors. Forceps was employed 11 times, or in 6.14 per cent of the pregnancies and in 50 per cent of the cases of dystocia. In 3 instances, or 1.67 per cent, of the pregnancies Cesarean section was performed, and in the same percentage of cases postpartum and puerperal hemorrhages were noted. The placenta was retained also three times (1.67 per cent). The fetal mortality was 17.87 per cent, and the maternal 1.67 per cent. The latter is not altogether attributable to the operation, for one death was the result of chronic valvular disease of the heart. The true maternal mortality is, therefore, but 1.11 per cent (two deaths). The great frequency of the transverse presentations is undoubtedly due to an inability on the part of the uterus to properly expand in its long diameter. Its growth being impeded in this direction, a compensatory dilatation takes place in the transverse and antero-posterior diameters. The fetal ellipse finds the greatest room in these diameters, and by its further growth and development contributes to the undue stretching and attenuation of the posterior uterine wall, the process at times being carried to the verge of rupture. The stronger the bond of union between the anterior uterine wall and the abdominal parietes the greater is the probability of such an occurrence. If properly performed, hysteropexy should result not in such a firm adherence between these structures, but in the formation of a partially elastic band, which, while securing and maintaining an anterior position of the uterus, does not in any way interfere with its mobility. The suturing of the anterior wall of the uterus, which is earnestly advocated by some, is particularly to be deprecated, in that it defeats this very desirable object; a too firm fixation is thereby secured and subsequent difficulties in gestation and parturition engendered. To prevent this complication Leopold and others favor the employment of absorbable sutures, while others recommend the removal of the fixation sutures within two weeks after the operation. If the fixation be properly performed Fraipont claims that the uterus does not increase especially in its posterior portion, but quite uniformly, so that, as might be expected, the fundus gradually detaches itself from the abdominal wall, or the adhesions—not including the muscular and fibrous structure of the uterus and abdominal wall, but serous and cellular tissue only—stretch to accommodate themselves to the increased tension. As the uterus undergoes involution it is restored to its original condition before the onset of the disease that rendered the fixation obligatory. The pains and traction at the site of the incision, and the difficulties experienced in the mechanism of the labor, are the direct result of dragging upon too firm adhesions which a proper technique would have avoided.

The abnormally high situation of the cervix uteri, at times altogether above the pelvic brim, is another element in the dystocia, the direct outcome of an improper technique in the performance of the hysteropexy. The object of the latter operation is not to convert a pathologic retrodisplacement into an

equally pathologic antelexion, but merely to restore and retain the fundus uteri in its normal position of moderate antelexion. This can only be accomplished by fixing the uterus at a point sufficiently low to prevent undue upward traction upon the cervico-vaginal attachments, but not so low as to cause a decided bending at the internal os or a marked anteversion of the organ. Leopold advises fixation at a point not more than half an inch above the upper border of the symphysis as most conducive to this end. Undoubtedly it is true that the lower the fixation the greater the percentages of difficulties in subsequent gestations—a statement the truth of which is substantiated by an inquiry into the relative percentages of dystocia following the two operations of ventral and vaginal fixation. Noble states that over 25 per cent of pregnancies subsequent to the operations of Dührssen and Mackenrodt abort, and Dührssen himself says that of patients treated for retrodisplacement by means of pessaries 16.6 per cent abort, while of those treated by fixation of the uterus to the vagina 27.2 per cent abort. The very large number of difficult labors reported after the operation of vaginofixation is also a strong proof of the accuracy of this assertion. The abortion in these cases is the result of a duplex cause—the reflex irritation produced by the fixation sutures and adhesions upon the developing organ, and the actual mechanical interference with its growth. In those cases that advance to term the abnormal direction of the uterine axis—back toward the sacral promontory—not only renders the uterine pains ineffective, but also prevents the proper retraction of the longitudinal muscular fibres of the cervix, so that dilatation does not proceed normally, the labor thereby being mechanically obstructed by this condition as well as by the immensely hypertrophied anterior uterine wall. In the vaginally fixated cases, to the foregoing abnormalities must be added a condition of marked cervical rigidity the result of the mass of cicatricial tissue that is formed about the upper portion of the cervix whereby its dilatation is absolutely prevented.

One other danger following the imperfect performance of anterior uterine fixation is an actual mechanical interference—through the agency of the adhesions—with uterine contraction, resulting during labor in a degree of uterine inertia, and after labor favoring the onset of postpartum and puerperal hemorrhages.

Dorland gives the following conclusions :

1. From an obstetric as well as gynecologic point of view the operation of ventrofixation for the cure of uterine displacement is the most desirable in its results.

2. If improperly performed any of the operations of anterior fixation of the uterus may exert a deleterious effect upon subsequent pregnancies.

3. This evil influence increases in direct proportion to the low implantation of the fixation sutures—hence the vaginal operations are especially dangerous.

4. The abnormal conditions noted include pain and traction

at the site of the incision, premature termination of the gestation, difficulties in micturition, excessive nausea and vomiting, abnormal presentations of the fetus, mechanical obstruction to labor, uterine inertia, cervical rigidity, uterine rupture, placental anomalies, and postpartum and puerperal hemorrhages.

5. Over half of the subsequent gestations and labors offer some abnormal condition.

6. About 14 per cent of the women suffer from abortions or miscarriages, and over 12 per cent show dystocia in varying degrees, after hysteropexy, while over 27 per cent abort after vaginofixation.

DR. R. C. NORRIS read a paper on

THE MANAGEMENT OF LABOR COMPLICATED BY
VENTROFIXATION.¹

DR. B. C. HIRST.—I should like to add two cases which have come under my care which are of interest in connection with the subject. I have quite recently seen two women delivered after the operation of suspensio uteri. One was a patient on whom Dr. Penrose had operated a year before. In that woman's whole pregnancy there was absolutely no abnormality whatever. She had a comfortable gestation; the womb rose naturally in the abdominal cavity; the child occupied a perfectly natural position, the head presenting first in one of the commoner vertex positions. Labor in that case was not complicated. The operation of suspensio uteri had no influence upon the act of childbearing whatever.

I also have under my charge a woman on whom I operated myself three and a half years ago. She was delivered about a year later, after a normal pregnancy uncomplicated by pain or dragging on the cicatrix, by difficulty in urination, by opposition to the rise of the womb in the abdominal cavity. Labor was entirely normal. This same woman is about to be delivered again, after a perfectly normal, comfortable pregnancy, and I anticipate no difficulty in labor.

Both these women have shown a normal position of the womb some months after their delivery. In Dr. Penrose's case five months have elapsed since the birth and two years since the operation. In my case the womb has remained in good position between pregnancies and long after the operation. I believe, myself, that these favorable cases I have reported are to be explained by a proper technique, the avoidance of taking in too much abdominal tissue with the ligature that holds the fundus of the womb in place.

DR. CHARLES P. NOBLE.—My attention was drawn very forcibly to this subject by the first case reported by Dr. Norris, because I operated on the patient and this led me to study the whole matter. To take up Dr. Dorland's remarks first, I would say that I was surprised to hear the statement made that there

¹ See original article, p. 91.

had been cases reported of dystocia following Alexander's operation. I have not studied the statistics of that operation myself, but in preparing a paper upon the general subject last spring I accepted Dr. Edebohls' statement that there were no such cases on record. Therefore I would be very glad to have Dr. Dorland relate the difficulties which have been met with after this operation. It seems very curious that there should be trouble after shortening the round ligaments. The only one that has been recorded to my knowledge is that some of the women late in pregnancy complained of drawing pains, indicating that the shortened round ligaments were being tugged on as the uterus rose in the abdomen. This brings up Dr. Dorland's conclusion that Alexander's operation is inferior to suspensio uteri. I would not accept that statement from my own practice as applied to the treatment of mobile retroflexion and in cases requiring an operation. I have myself done about eighty operations of suspensio uteri, and have done somewhere about thirty round-ligament operations. Gynecologically speaking, the results have been as good in one as in the other, and in both admirable. As to pregnancies following Alexander's operation, I have only one to report, now at the fourth month. On theoretical grounds I must wait for evidence of difficulties after Alexander's operation, for I feel that in mobile retroflexion it is superior to ventrosuspension. As to the certainty and facility with which it can be done, I will only say, after doing twenty of these operations, that any one who has done suspension *nicely* can do Alexander's operation perfectly, and with just as much satisfaction as he can do the other operation. When it is not done satisfactorily it is from the bungling technique. In my first case I attempted Alexander's operation and failed. I did not do it because I did not know how. I have since learned how.

The other conclusions of Dr. Dorland are very similar to those in a paper which I read before the American Gynecological Society in May, 1896.¹ The figures vary somewhat, because the doctor has a larger number of cases. I think there were eighty per cent of the cases that I reported which were entirely normal, and twenty per cent in which some difficulty ensued in labor. Of the twenty per cent, all except two per cent were such difficulties as the ordinary resources of obstetrics, such as version and forceps, were able to overcome. There were two per cent of insuperable difficulties, necessitating Cesarean section. In the series of cases which one of my assistants collected of foreign authors the totals corresponded very strikingly. The foreign tables I did not depend upon for the conclusions in my paper, as I had not studied them and felt that there would be a certain amount of duplication. But I felt that they would be of value for comparison with the American statistics. The American statistics I verified by sending them back to the original reporters. The point brought out in

¹ THE AMERICAN JOURNAL OF OBSTETRICS, vol. xxxiv., No. 2, 1896.

Dr. Norris' paper is one which I recommended last May, and I think his conclusions are very sound. My suggestions at that time were that these cases should be studied particularly after the seventh month, and, if it were found that the cervix was ascending out of the pelvis, labor should be induced, of course recognizing that the chances of the child would be jeopardized, but the advice being given largely in the interest of the mother, to save her from possibly, and not improbably, a Cesarean section. I still feel that is the best course to pursue. If, however, we are called in at full term I feel entirely as Dr. Norris does, that the situation is serious when the cervix is drawn up into the abdomen, and then temporizing is the worst practice.

As to the question of vaginal incision, I have very little to say about it. Theoretically it appeals to me, and the results, as reported by Dr. Norris, are in its favor. I think the worst practice in all these cases is to temporize until the patient becomes infected, because then we lose mother and child. Finally, from the standpoint of technique in *suspensio uteri* it is a curious thing that, although I have now had four or five women who have been delivered, all have had the same technique and the results of labor were absolutely different. In the first patient upon whom I performed the operation the uterus was sutured more securely than I have ever done since, because, being the first operation, I was desirous that there should be good union. This patient was delivered in the University Hospital this past summer after a normal labor. She had a normal pregnancy, and six weeks before full term I found the head well down in the pelvis. She was a primipara, 35 years old. The same technique was employed in the case reported by Dr. Norris which had such serious trouble, and also in the others which I reported in a paper recently read before the Philadelphia Obstetrical Society.

I am in entire accord with the view that the technique does have an influence on the course of pregnancy and labor. In these patients of mine that escaped trouble it was in spite of, and not because of, the technique. I am firmly convinced that the technique advocated by Kelly is better than that advocated by either Olshausen or Leopold, and if any change is to be made in Kelly's I would suggest that the stitches should be put nearer the mid-line of the fundus rather than behind it. Gynecologically this will not give as good a result—it does not anteflex the uterus so well—but in young women who are liable to become pregnant I believe it is a wise change to make in technique.

While maintaining the position that shortening the round ligaments is preferable to *suspensio uteri* in mobile retroflexion, I recognize that *suspensio uteri* has a wide field of usefulness when adhesions have to be broken up. In young women we must look at the obstetrical side of the question, and it is wise not to put the stitches too far back on the uterus.

DR. C. B. PENROSE.—I think that we make a mistake in comparing a series of cases in which ventrosuspension has

been performed with an equal number of cases in normal women. in considering the difficulties encountered in subsequent pregnancies. The cases in which ventrosuspension is performed are usually those in which several conditions are met with aside from mere displacement: many of them have pelvic adhesions, which are broken up and which are probably renewed after operation, and may be the cause of subsequent trouble; others have unilateral oöphorectomy performed; in most there is a chronic inflammation of the endometrium; in women in whom the retroversion follows a pregnancy, a labor, or miscarriage, there is subinvolution of the uterus; and in other women who have suffered a number of years with congenital retrodisplacement there is a sclerotic condition of the uterus. All of these reasons may account for the number of abortions and some of the other accidents which occurred in the series of cases which have been subjected to ventrosuspension. Then it does not seem fair to me to collect in one series all of the recorded operations of ventrosuspension and to gather the results of pregnancies together, because there is as much difference between two forms of operation of ventrosuspension as there is between Alexander's operation and ventrosuspension. Some operators scarify the anterior face of the uterus, making firm fixation; others pass the suture through the uterus from horn to horn, and through the fascia of the abdominal wall, and we should expect in such cases to have trouble. Then other operators, who have not a perfect, aseptic technique, have adhesions surrounding the fundus uteri, which should not exist in a well-done operation. Dr. Norris speaks of performing massage for the absorption of these adhesions; but no amount of massage would free the suspensory ligament that is made by properly performed ventrosuspension. I have performed ventrosuspension of the uterus over a hundred times. I have no doubt that several cases of pregnancy have occurred in these women. Many of them were operated upon in the wards of the hospital and then lost sight of. In the case of pregnancy to which Dr. Hirst has referred there seems to have been no trouble whatever which might be attributed to the operation. It seems to me that if operators would not attempt to fix the uterus nor to suspend it, but would simply endeavor to make a thread-like guy to maintain the uterus in its anterior position, so that abdominal pressure would be exerted on the posterior wall, no trouble would arise. I have had an opportunity of examining the ligament in four patients; in three of these women I had operated myself, and one had been operated upon a year and a half before by Dr. Da Costa. In these four women no adhesions whatever were present; there was a pliable ribbon from one and a half to three inches in length, about one-twelfth or one-eighth of an inch in thickness. In one case this ribbon broke as I drew the uterus up through the abdominal incision, showing how yielding and fragile the structure is. I think that statistics of the results of the operation of ventrosuspension should include an explicit description

of the technique which is followed, and cases in which a fixation is done should not be classed with the other forms of operation. If all operators would endeavor merely to make a single, almost thread-like band, extending from the anterior abdominal wall to the top of the fundus uteri, little if any trouble would result from subsequent conception.

DR. JOHN C. DA COSTA.—I indorse very fully what Dr. Penrose has said. It is hardly fair to compare a set of women in labor who have been operated on or treated for uterine disease with those who have always had perfectly healthy wombs. Next, Dr. Dorland might have eliminated from his percentage the average percentage that occurs in cases that have not been operated upon; we have a certain lot of breech presentations and a certain lot of cross presentations and a certain lot of forceps operations, even in healthy women. I have not had an opportunity of following up all the cases which I have operated on myself, but came some time ago to the conclusion that the difficulty in labor depends on how the operation is done. At the beginning the idea was to form a firm, perfect fixation; in fact, the operators were to scarify the uterus and peritoneum, so as to get firm adhesions. Either silk or silver-wire sutures were to be deeply passed through the uterus, carried through the abdominal wall, and fixed there for three or four or five weeks. Everything was done to get up an inflammation between the uterus and the abdominal wall, and as a consequence, as in the cases cited by Dr. Norris, there was as firm union between the uterus and abdominal wall as there would be in any muscle in the body if it is cut and closed up. In analyzing the cases of ventrosuspension and ventrofixation I think you will find that the difficulty occurs almost always in cases of ventrofixation. Dr. Penrose has alluded to one case which I operated on, and this has been my experience in other cases which I have had to open later for other trouble, as in a woman in whom I removed the tubes and ovaries for salpingitis and on whom I did suspension. Some five or six months afterward, when opened for tubercular peritonitis, I found the uterus suspended by a semi-serous, semi fibrous band which allowed it to move perfectly in any position. A band of that kind cannot interfere seriously with labor; it is so fragile that it breaks, as Dr. Penrose has stated. The secret of success is in putting in the stitches. Do not try to go deeply into the abdominal wall or into the uterus, but let your first stitch be not longer than a quarter of an inch; let it go not deeper than a tenth of an inch into the peritoneum through the muscle of the abdominal wall; then bring the stitch out, not through the back of the uterus, but through the top of the fundus, taking not more than half an inch long at the outside and not going more than the tenth of an inch into the body of the uterus; bring out the stitch from the other side, and tie closely to the abdominal wall. I think the cases do better if stitched in the top of the uterus rather than when the back part of the fundus is stitched. In cases of this kind you will find, when you open five or six

months afterward, if you have used chromicized catgut or the very finest Chinese silk, that the ligature has entirely disappeared and the uterus is simply suspended by a semi-serous ligament which cannot interfere at all with labor.

DR. G. E. SHOEMAKER.—I have been for nearly two years putting the stitches in the front of the crest of the fundus, and believe it to be a very important point in the technique of ventrosuspension, which should be generally adopted where pregnancy is possible. I would record a case of double uterus in which I did this operation. The patient became pregnant and aborted at six months. This was not due to the ventrosuspension, however, as she did not suffer from traction and the pregnant organ was in good position.

DR. C. P. NOBLE.—The cases that I collected showed ten per cent of abortions. Every one's experience in practice indicates that this is about the usual percentage of abortions. When we consider, as Dr. Penrose has pointed out, that many of the uteri in patients having had *suspensio uteri* have been inflamed, which condition of itself would favor abortion apart from ventrosuspension, it shows the more clearly that there is no evidence that the operation has any influence in causing abortion.

DR. DORLAND.—My main object in looking up the papers that I did was to satisfy myself as to the actual standing of the operation during the ten years that have now elapsed since Kelly introduced it, and what its exact effect upon labor was. If you will recall, I stated the cases were those in which the patient had previously had normal pregnancies and gestations, so that we could attribute the present trouble to the operation. As regards difficulty after Alexander's operation, I found reference to three cases—two reported by one man, an Englishman, and one in this country—in which the patients during pregnancy suffered from pain and traction in the groin and also from marked nausea and vomiting. As to the inferiority of Alexander's operation, my stand was that the operation of hysteropexy had been adopted to supplant the operation of Alexander where that operation was either not possible or had failed; and that being the case, I claim that hysteropexy, both obstetrically and gynecologically, is the preferable operation in considering them together. I am in accord with all who have stated here to-night that the American method is decidedly preferable to that adopted by the Germans. When that operation is performed the delicacy and elasticity of the adhesions are without doubt recognized by all. Especially would I note in this regard the case of Laphorn Smith in which he had the opportunity of performing a secondary abdominal section after the operation of hysteropexy, and which showed the presence of these bands, slight and yet sufficiently strong to hold the uterus in the proper position of moderate anteflexion.

DR. RICHARD C. NORRIS.—I think the discussion of this subject will lead to the employment of the proper technique of suspending the uterus. That seems to be essential to prevent

trouble in subsequent labors. I am sorry more was not said about the obstetrical side of this matter. When you find yourself at the bedside of a woman in labor and the cervix is obstructed by a tough, resisting mass of muscle which is like so much leather or gristle, not permitting dilatation in the slightest degree, it is necessary to interfere at once. Cesarean section or the less aggressive incisions of the cervix are necessary. Had I known that incision into the cervix could be practised with such good results as to hemorrhage, I certainly would have incised the cervix in the two complicated labors I reported, because I believe in these cases the cervix was sufficiently low to make the incisions with safety. I can conceive of cases where the cervix is drawn up so high that the incisions should they cause dangerous hemorrhage, would be difficult to suture. The report of my cases is offered to impress the fact that when you find a case with the cervix pulled well up to the promontory of the sacrum, with thickening of the anterior lip of the cervix, you should not wait for Nature to accomplish any further dilatation, but at once etherize your patient, try to obtain dilatation, and, if your efforts are futile, delivery by abdominal incision should not be delayed. The cases that have been treated by Cesarean section have been those in which other measures have been unsuccessfully tried, and they gave a high mortality—fifty per cent for mother and child. If I ever come in contact with such cases I shall at once terminate the labor in one or the other manner above stated.

In the two cases I have seen the mass of muscle was so distorted, its fibres so intimately grown together, and the obstruction was fixed so low in the pelvis, that I think simply separating the sutures would not allow the fundus to rise up under the diaphragm. The womb, instead of having its normal dimensions, is thickened at one end and thinned at the other, and I fail to understand how removing the sutures would remove the obstruction, which results from defective development in the shape of the pregnant uterus.

It has been found in cases operated upon that the operator was compelled to open the uterus and perform Cesarean section. The only time to free the uterus from binding adhesions is in the early months of pregnancy. It would be perfectly justifiable to do this operation at that time. If I should meet a case that promised difficulty, sufficiently early in pregnancy, I would open the abdomen and free the uterus, so that the growth and development of the fibres of the anterior uterine wall could proceed in a normal manner.

DR. B. C. HIRST read a paper upon

TECHNIQUE IN CESAREAN SECTION.¹

DR. CHARLES P. NOBLE.—I understand the principal object of this paper is to give a clear outline of practice to those not

¹See original article, p. 97.

having large experience. I should question, myself, whether a person without large experience would be able to do the operation as laid down in the paper, involving, as it does, a careful ligation of the broad ligament, suture of the cervix, and suture over the stump of the peritoneum *secundum artem*. This is a very simple operation in the hands of an expert, but it is simple because he is expert and not because the manipulations themselves are simple. Particularly this would be true if the inexpert were operating without the Trendelenburg position, as the ordinary Cesarean section is done. Because of the length of the vagina in pregnancy the stump could be dragged up, but an inexpert operator would have considerable embarrassment from the intestines getting in the field of work, practising Dr. Hirst's method, with the patient flat.

These suggestions come to me from the standpoint of the non-expert operator doing hysterectomy. Aside from these considerations, which have a bearing on the paper, I question whether we have the right to do hysterectomy in a plain, ordinary case. It seems to me the statistics of Cesarean section at this time do not call upon us to render a woman sterile who has obstruction to labor in the bony pelvis. Of course if there is fibroid tumor or an allied condition this alters the case. It is not justifiable to render a woman sterile because she has a small pelvis. Statistics show that elective Cesarean operations have not a much larger mortality than the average mortality of labor in large cities. On that ground I believe we should still do the classical operation, modified by modern methods; and, from the standpoint of the paper of the evening, I think this is also true because it is a very much simpler operation than is hysterectomy.

DR. G. M. BOYD.—In the past year we have had two Cesarean operations at the Lying-in Charity. The first was a Porro for fibroid tumors complicating the delivery; she had also a contracted pelvis. The second was a rachitic patient with a very small antero-posterior measurement. In the second operation the Säger-Cesarean was performed, and in both cases patients made a nice recovery.

One point I think of advantage in the operation is in the removal of the child from the uterus and the removal of the placenta. I think that, rather than hastily remove the child from the uterus, it should be removed gradually, and that it is a mistake to remove the placenta hastily. After the removal of the child the uterus should be allowed to contract well down upon the placenta, and, as in normal labor, the uterus will apparently expel the placenta through the abdominal wound. This, I think, favors better contraction of uterus and possibly less hemorrhage.

DR. B. C. HIRST.—My reasons for taking the womb out after Cesarean section, and recommending every one else to do the same, are that it is easier and safer to do so. The hysterectomy removes all danger of postpartum hemorrhage, of leakage into the peritoneal cavity, of a gaping of uterine and of abdominal

wounds, as in a case with which Dr. Noble is familiar. Further, it saves the woman from the danger of septic endometritis. Above all, it saves her from the danger of death in a future labor. Statistics of Cesarean section show a mortality in this country of forty per cent. In my opinion it is not right to subject a woman to such a risk as that when we can so easily prevent it. It seems to me the height of folly to accept the recommendation to tie the Fallopian tubes in the course of a Cesarean section and yet leave the womb behind. But this is considered a justifiable procedure and is urged strongly in some parts of Europe. I have always found, in cases which are brought to me in consultation, that it is the wish, expressed without any prompting on my part at all, of the physician who brings the patient to me that I shall prevent the possibility of such an operation in the future. I am quite certain that if the subject were put fairly and truthfully before the patient and her friends, they would insist in every instance upon some measure to prevent the repetition of such a risk to the woman's life. It gives an entirely wrong view of the matter to say, as Dr. Noble does, that the statistics of this operation are so favorable that we can view with no concern a repetition of it in the same woman. It is assuming a very serious responsibility to speak lightly of condemning a woman to a repeated Cesarean section. It argues, I think, lack of experience in the operation itself and lack of information about its statistics. Allowing for the danger of ruptured uterus in a pregnancy or labor following Cesarean section, taking into account the possibility of the woman being distant from skilled assistance in her next labor, we cannot promise her more than two chances out of three for her life, if we give her the opportunity of becoming pregnant again.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, April 17th, 1896.

The President, GEORGE BYRD HARRISON, M.D., in the Chair.

DR. J. R. BROMWELL read an essay entitled

MEDDLESOME MIDWIFERY.

That there are conditions defying Nature's forces to accomplish the birth of the child unaided we all know, and for this reason midwifery practice occupies the place which it does in general medicine. It is also true that parturition is a normal

physiological process and rarely needs more skilful management than that usually given by a patient and intelligent midwife. Notwithstanding this, it is my opinion that the use of the obstetric forceps is growing, needlessly and unnecessarily, and that we have forgotten the teachings of years gone by, "to beware of meddlesome midwifery." Give Nature time to accomplish her work before aiding the labor by instrumental interference. There is a wide difference in accomplishing an act slowly but surely and not being able to accomplish it at all. Time is one of the least factors to be considered in determining your treatment of the three stages of childbirth. The condition of the woman or child, or both, is the important consideration. Your desire to speedily end the labor, that you may fill another pressing engagement urging you away from your patient's bedside, is not to be considered. Are the forceps used many times now where they were used very rarely years ago? I think so, and would ask you if the comparative results justify this use. Are there not other means to alleviate the pains of the parturient woman and assist Nature in her efforts to complete the labor, other than forcibly dragging the child into the world, often before the parts are ready for its passage—the only excuse being that labor has lasted twenty-four or thirty-six hours?

Are we not making too frequent vaginal examinations? The condition having been ascertained to be normal, diagnosis of position made, and degree of dilatation of the os known, is it necessary to annoy and often endanger the health or life of the woman by frequent examinations, often prompted by our own impatience? Are we not often rupturing the membranes too soon; and are we not leaving our cases in the care of nurses, telling them only to send for us when they are sure of a speedy completion of the labor? Is this not leaving them to act for us, and by our commands, in one of the worst forms of meddlesome midwifery, as they can only ascertain what we require them to know by unskilled, frequent examinations?

The second stage completed, are we not in too great a hurry to cut a pulsating cord and forcibly express the placenta, or in introducing the hand to remove it? Would it not be more scientific to wait a reasonable time for its separation and expulsion, and allow Nature to complete the third stage as well as the first and second? Is not any interference with a normal labor or any other, aside from assisting Nature should she flag in her efforts toward its completion, unless demanded by threatening danger to mother or child, meddlesome midwifery?

Are we not, in our great haste, losing sight of our obligation to consider the interests of the mother and child as paramount to all others, no matter what outside interests suffer by our detention by the bedside? From the time we enter her room and take charge of the case our duty is to her and her unborn child only. Needless hurrying the labor, or leaving too soon after the birth of the child, violates that obligation.

DR. A. F. A. KING said the question as to how frequently

forceps should be used was an old and interesting one. Their use was growing, but whether judiciously or not he could not say. It would be difficult to prove that they were too frequently used. It was a great temptation, but how many yielded to it he could not say. Earlier reports show that forceps were much less frequently used than latterly. The statistics of Dr. Davis, of London, seventy-five years ago, show that they were used only once in twelve hundred cases. Gradually their use increased in frequency to once in one hundred, once in fifty, and finally to once in six or seven cases. The practice was to leave the head in the vagina from four to six hours, if there was any hope of spontaneous delivery. The use of forceps must be left to the moral principle of the physician himself. Mitchell reported seven hundred cases of obstetrics with only one death. He seldom used forceps. Another practitioner reported nine hundred cases, and, although he did not use antiseptics, not a single death occurred among his obstetrical cases. Too frequent vaginal examinations should not be made, as the presentation may be determined by external palpation. The cord should not be cut too soon, as the child gained some in weight by waiting. There was more room for blood after breathing was established. The placenta might be expressed at once in a number of cases, but generally it was best to let it remain some little time.

DR. SAMUEL S. ADAMS said it was a practical point to determine when forceps should be applied. He thought he had sometimes waited too long for Nature to complete the delivery, and in these cases the women were exhausted and rupture of the perineum occurred. The too frequent vaginal examination was the result of old ideas. Each individual case should be studied by itself and judgment formed as to the treatment to be pursued.

DR. THOMAS C. SMITH asked Dr. Adams if he did not make vaginal examinations as often as he thought it necessary.

DR. ADAMS said yes, but his judgment was better now than it was ten years ago.

DR. WILLIAM P. CARR said we should bear in mind that where forceps are used the cases are of some difficulty and damage was liable to occur. The danger was to the perineum and to the child's head. Some of the worst lacerations he had seen occurred in cases where the use of forceps was delayed too long. He referred to a case of still-birth where the head was allowed to remain too long in the vagina: he thought the early use of forceps might have saved the child. As to the frequency of vaginal examinations, they do not seem to be as necessary as was formerly thought. He said it was easier to deliver the placenta a few minutes after the birth of the child than it was later.

DR. HENRY D. FRY said that the frequency with which forceps should be used in primiparæ depended upon circumstances. In high life it not infrequently occurred that the occiput got under the pubis and then the pains flagged. In such

conditions there was not much use in waiting for spontaneous delivery. Lacerations were not more liable to occur with forceps than without them. Delivery should not be hastened too much. The third stage of labor was less understood than any other. A few minutes was not long enough to wait for the placenta. At least an average time of twenty minutes' rest should be given the uterus after delivery of the child, when it will begin to contract, and then Credé's method may be used. He thought the most meddlesome midwifery was the too hasty delivery of the placenta.

DR. J. FOSTER SCOTT said at the Sloane Maternity forceps were used once in every twelve or thirteen cases, while in other institutions they were not used oftener than once in fifty cases. It was important to have the bowels and bladder empty before using forceps. Examinations should be made as often as was necessary, but it was important to have the hands well cleansed, using a fresh solution each time the examination was made. It was easy to diagnose the position by external palpation, but the condition could not be determined without vaginal examination. He used chloroform early and carefully in the second stage of labor. There was some little danger to the child in using forceps. He believed in axis traction and going slow. In the delivery of the placenta he waited until the uterus retracted, then stimulated it to contraction, keeping his hand on it for some time.

DR. GEORGE BYRD HARRISON asked Dr. King if the use of anesthetics might not obviate the necessity for the use of forceps, inasmuch as the anesthetic *saved* the pains.

DR. A. F. A. KING said it was a recognized fact that an anodyne *saved* the pains.

DR. THOMAS C. SMITH said that meddlesomeness in anything was bad, but was especially so when applied to midwifery. Every man must be an authority to himself after twenty years' practice. He would have no hesitancy in making vaginal examinations every five minutes, if he thought it necessary, and he applied forceps whenever he thought it advisable. One year, in seventy-five obstetrical cases he had used instruments twenty-five times, and he had no regrets for having done so. A doctor will be just as much criticised if he does not use instruments as he will if he does use them. When a medical student he heard a great deal about vesico-vaginal fistulæ, but he had not seen a case since he graduated, and he seldom heard of one. This was because forceps were more commonly used, and medical students were better instructed how to use them than they formerly were. The doctor must decide, for himself, each case upon its merits.

DR. FRANCIS SMITH NASH asked if epilepsy was not more likely to develop in children delivered with forceps. He said it was difficult to introduce the hand into the vagina without carrying germs.

DR. GEORGE BYRD HARRISON asked why it was so important to disinfect if there was no laceration. Those who use forceps object to rapid delivery of the placenta.

DR. W. SINCLAIR BOWEN, speaking of the cases referred to by Dr. King, said it would seem almost incredible now that any one could deliver twelve hundred women without once using forceps. It would be of interest to know how many of these cases suffered from fistulæ.

DR. J. WESLEY BOVÉE said he was much in favor of using forceps, and he believed that less harm resulted from their proper use than happened without them. There was less danger to the mother and seldom any harm happened to the child. He said he believed that a child was seldom delivered that some of the placenta was not separated, and many times the child and placenta came away together. This being so, if the placenta was free it might as well be delivered immediately. The rarity of fistulæ was due to the early use of forceps. He agreed with Dr. Scott as to the advisability of using chloroform in the second stage of labor. He did not believe in ether in these cases. Deep anesthesia retarded labor.

DR. J. THOMAS KELLEY, JR., said that in his observation of three hundred obstetrical cases, in those in which frequent vaginal examinations were made there was a rise of temperature, so that he was jealous of such procedure. Forceps were used four times in the three hundred cases. The temptation to express the placenta was very great, because it was accomplished so nicely. He waited twenty minutes or more after the birth of the child before he instituted any means for the delivery of the placenta.

DR. J. R. BROMWELL said his object in bringing the subject before the Society was not to lay down any law, but to bring out discussion. It was not the time of the accoucheur that should be taken into consideration, but the condition of the woman. Repeated examinations in normal cases are unnecessary; not only are they unnecessary, but dangerous to the mother. In the second stage the advances of the descending child can be determined by external examinations, except in rare instances.

DR. J. WESLEY BOVÉE asked Dr. Bromwell how he could tell the condition of the anterior lip.

DR. BROMWELL said it was not necessary to resort to repeated examinations to determine the condition of the anterior lip; one or two should be sufficient. Any interference with the placenta, if the labor has progressed normally, until a sufficient time has elapsed for its normal separation and expulsion, was meddlesome midwifery.

DR. THOMAS C. SMITH reported a case of

SOFT FIBROMA OF THE PELVIC CAVITY DISTENDING THE
PERINEUM.

September 16th, 1895, the patient whose case I am about to report visited my office to consult me in regard to a swelling in the perineum. The patient is white, 37 years old, single, the mother of one child. For some months she had been anxious

at the appearance of a tumor in the perineum. On examination a lump nearly as large as an egg was found to the left of the median line and between the vulva and the anus. It was movable, not attached to the skin, and presented the ordinary symptoms of a fatty tumor. Next day, with the assistance of Drs. E. F. King and Balloch, I proceeded to remove the growth, anticipating a very simple operation. On incising the skin the tumor did not "shell out," as expected, and when exposed resembled a cyst rather than a solid growth. By making traction with a volsella forceps the mass was drawn through the incision in the skin, and adhesions were broken down with the finger. It was then seen that the growth extended into the pelvis, alongside of the rectum, to which it was attached by slight adhesions generally, but in some places it was necessary to use the knife handle or scissors to sever them. The tumor extended some five inches into the pelvis. Just above the sphincter muscle there was a firm adhesion to the rectum, and when this was separated the contents of the bowels escaped through the gap thus left. It seemed as though the bowel must have been ulcerated at this point, the tumor closing the opening. When removed the growth was somewhat Y-shaped, one arm going toward the rectum, the other to the vagina, while the stem passed upward. The weight was about four ounces. The mistake was made of stitching up the opening in the rectum without stretching or cutting the sphincter, for the wound was now converted into a fistula in ano. The four stitches gave way when the bowels were moved some days later, although the cavity left by the removal of the tumor was packed with iodoform gauze for the purpose of drainage, arrest of oozing from the separated adhesions, and the support of the rectum at the place of the opening. Early in October the patient was admitted to the Sibley Hospital, where I operated for the fistula. The results were entirely satisfactory, for when I saw the patient some two months later the fistula had entirely closed and the woman had full control of the bowel. Dr. Reed, of the Army Medical Museum, reported that the tumor was a "soft fibroma."

The interest in this case is in the relative rarity of this class of tumors in the locality indicated. Reference is made to them by authorities, Gross being among the first to refer to fibroids of the pelvis growing downward to the perineum, but the fact remains that they are not common. As stated above, it was attached by its entire length to the rectum. The error in diagnosis was perhaps excusable, for even after it had been exposed its nature was still doubtful. I am not able to say exactly where this tumor originated.

DR. J. THOMAS KELLEY, JR., said the specimen was an interesting one; he had never seen or read of anything just like it. Its position should have precluded beyond all doubt an error of diagnosis. The rectum on one side and the vagina on the other made its diagnosis almost easier than if it had been on the surface of the body. The operation might have been

improved upon by peeling up the vaginal wall on one side and the rectal on the other without getting into the rectum.

DR. HENRY D. FRY said he had had a case somewhat similar to the one reported. It presented the appearance of a fibroid tumor of the vaginal wall extending as far down as the perineum and closing the vagina. While the tumor was being removed its wall was broken through, discharging from its centre a grumous material. Another tumor was discovered higher up, which he tried to remove through the same opening. This collapsed as did the first one. After the removal of the tumors a tremendous venous hemorrhage occurred. The patient made a slow recovery.

DR. THOMAS C. SMITH said when he began the operation he thought he had a solid tumor to deal with, but after making an incision it looked like a cyst. The finger could be inserted into the vagina without showing that its calibre was diminished.

TRANSACTIONS OF THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

Meeting of October 13th, 1896.

The President, W. S. GARDNER, M. D., in the Chair.

The following officers were elected for the coming year: *President*, Dr. Wilmer Brinton; *First Vice-President*, Dr. J. Whitridge Williams; *Second Vice-President*, Dr. G. L. Taneyhill; *Secretary*, Dr. W. W. Russell; *Treasurer*, Dr. J. M. Craighill.

DR. JOHN NEFF read a paper on

MALARIA OR SEPSIS IN THE PUERPERIUM.

Malarial symptoms simulating sepsis during the puerperium have been of frequent occurrence in my obstetrical experience. A chill in the puerperal patient often comes unheralded. If the patient has passed the period of pregnancy with no untoward symptoms; if the labor has been natural, free from accident or instrumental interference, we anticipate an uneventful puerperium.

The patient, having passed the seventh or eighth day of her "lying-in period" with all the puerperal functions unimpaired, the lochial and lacteal secretions normal, and with no unfavorable symptoms, may be seized with a chill of the severest type, followed by a temperature of 102° to 104° and a profuse and exhausting perspiration. The subsequent day the temperature and general condition are normal. On the third day another chill occurs, unless warded off by heroic doses of quinia.

These malarial chills do not check the secretions, or do so temporarily if the temperature remains high for more than a day or if the chills occur frequently. The chills are regular in recurrence and character. They are always followed by high fever, profuse perspiration, and fall of temperature, and usually by hepatic and gastric disturbances, nausea, and vomiting.

The septic condition of the puerperal patient is incident to the delivery of a putrid fetus; protracted and difficult labors; laceration of the cervix, vagina, perineum, bladder, or rectum, alone or together; careless removal of retained and adherent placenta; instrumental or surgical procedures. Infection by medical or other attendants is a frequent cause. The monthly nurse, with her "itinerant syringe," negligently cared for and ruthlessly used, often causes sepsis, even when labor has been normal. So fearful have I become of such interference that I allow a patient who has had a natural delivery to pass through the puerperium without a douche, only enjoining external cleanliness with antiseptic precautions.

The chills indicative of sepsis are irregular, prolonged, and successive, followed by continuous high temperature, 103° to 105° , and free perspirations. Gastric and hepatic disturbances are usually absent. The lacteal and lochial secretions are checked, or the lochia are scant and offensive; delirium is usually present, the face dusky, features haggard, tongue dry and sordid, appetite poor, attitude listless and despondent. This condition is serious and often baffles all treatment.

I beg to report a recent case of malarial condition simulating sepsis. Mrs. W., primipara, aged 25 years, of delicate physique, suffered with severe gastric symptoms in early months of pregnancy, which subsided at end of third month. In the latter part of her pregnancy all bodily and mental functions were normal; appetite and digestion good; hopeful and bright. Labor began at 9 A.M. September 9th; first stage pains slight and infrequent, dilatation slow, os rigid. Spinal pains severe and unbearable; inserted morphine sulphate $\frac{1}{4}$ grain, atropine $\frac{1}{100}$ grain, every two or three hours hypodermatically; afforded marked relief and facilitated dilatation. Labor progressed favorably, but rather tediously. Presentation R. O. A. At 7 P.M. her suffering was severe, pains regular and effective, dilatation retarded. Began the administration of chloroform to alleviate pain and complete dilatation. After two hours' continuance, complete dilatation of cervix had obtained and the vaginal outlet was thoroughly relaxed. The descent of head was slow and arrested at middle strait. It seemed useless to tax the patient's strength in her futile efforts at delivery, so I used the forceps, with a slight laceration of the perineum caused by the shoulders. Placenta was removed easily by pressure and little traction, laceration repaired by three carbolized catgut sutures; primary union ensued. The bladder required catheterization for a few days. All other conditions were favorable. The third day passed a few small

clots; used vaginal douche of sterilized carbolic water. No medicine seemed requisite, except a mild purgative.

After an apparently uninterrupted convalescence, I found her on the eighth day in a profound chill lasting an hour, followed by a temperature of 104° , and later a profuse and exhausting perspiration. The secretions were unchanged and unchecked. I gave quinine salicylate and antipyrin, of each five grains every three hours. The patient passed a sleepless night, and the medicines were given regularly. The next morning temperature and all conditions were normal. At noon she had another slight chill, with rise of temperature to 103° and characteristic perspiration. The third day, morning temperature was normal, and, notwithstanding the regular giving of medicines, a slight chilliness ensued at noon, with former attendant conditions much modified. After third day convalescence was rapid, and complete recovery followed.

DR. W. W. RUSSELL.—I might speak of a few cases in this connection that I have seen in the hospital this summer. They were a series of four cases during August and September. Their symptoms were of such a character as to admit them into the wards for proposed operative treatment. In the first case a tube and ovary had been removed for chronic inflammatory disease about a year before, and when she returned with chills and temperature we suspected a return of the old trouble. She had one chill after entering, and had all the aspects of malaria. An examination of the blood showed it crowded with organisms, and, after treatment by quinine, she went home well without any operation. Another case was that of a woman who had entered the hospital because of a loss of power of the sphincter. She had been operated upon for perineal abscess and the sphincter had been divided. She did well until about the tenth day, when, after a chill, the temperature went up to 106° . An examination of the blood showed malarial organisms. In another case the woman had a bad wound infection following hysteromyomectomy. I united the ends of the retracted muscle, and as the temperature did not fall after the wound had begun to granulate I suspected that there was yet another cause, and upon examining the blood found malarial organisms. In the next case the woman entered on account of having attempted to induce abortion. She had used a sea-tangle tent, and put it into the bladder instead of the cervix. After the operation for its removal she did well for a time, but then had a chill which we found was due to malarial infection.

DR. J. W. WILLIAMS.—There is no reason why we should not have malarial attacks during the puerperium. The doctrine advanced, however, is a dangerous one to uphold. We all know that most of the cases of pus tubes coming into our hands have gone through a previous history of treatment for malaria, etc. We discover this by asking such persons whether they have had an attack of malaria or typhoid during the past few years. We are not justified in making such a diagnosis, unless we demonstrate the presence of the malarial plasmodia in the

blood and the absence of pus organisms in the tissues. We may find malarial organisms, and still have a patient with sepsis. We may also have such cases combined with malaria, and, unless we examine the lochia and demonstrate the absence of organisms in the uterus and the presence of malaria in the blood, we are not justified in calling the case malaria. I consider that we should be most cautious in diagnosing malaria in the puerperium; for the chances are that many cases will be improperly diagnosed as such, which are really due to sepsis, and the malaria will simply be a cloak to shield the physician.

The method by which we obtain the lochia may be of interest to you, so I have brought with me my outfit for this purpose. You must be sure that you secure it in an aseptic manner, so we must thoroughly cleanse ourselves and our instruments. We introduce into the vagina a bivalve speculum, seize the lip of the cervix with forceps, wipe away the secretion from the os externum with sterile cotton, and then introduce up to the fundus of the uterus a glass tube, which had been sterilized. A syringe is then attached to the tube and the piston drawn, when some lochia flows into the tube. The ends of the tube are then sealed with wax and the tube carried to the laboratory, where it is broken open and cultures taken, and we can feel convinced that the organisms found are from the uterine cavity and nowhere else.

While I have not seen many cases of malaria in the puerperium myself. I have seen in my gynecological work several cases that have caused me considerable anxiety. I might mention some of these. The first is a woman from Sparrow's Point upon whom I had performed a laparotomy. The operation was successful and I had no fear that anything would go wrong. On the afternoon of the third day, the patient had a chill and temperature rose to 104° . It was a surprise to me, for I had no reason to expect trouble and hardly thought it could be sepsis. I examined the blood and found it swarming with organisms. She was put upon quinine and got well promptly. The second woman came from the same place and also had undergone laparotomy. On the fifth day she had a chill and rise of temperature. This woman had not had her bowels moved, though we had tried in many ways to produce an action. Her belly was swollen and her appearance was alarming. On examining her blood, the organisms of malaria were found, and temperature disappeared under the use of quinine. These cases taught me to look out for malaria in post-operative conditions as well as elsewhere. In another case, I was sent for two weeks ago to come to the hospital and see a woman who had appendicitis. I found the woman had entered with a temperature of $104\frac{1}{2}^{\circ}$ and pulse of 130. She was lying in bed with her legs drawn up and a pinched face. There were no physical signs about the thorax. There was pain in the right iliac region. In the lower part of this region we found signs of resistance, and, on examination by the vagina and rectum, we found a big mass on the right side. I concluded she had

a pus tube and that the temperature was due to that. Dr. Gamble, who had seen the case, thought it was appendicitis. We decided to wait, and the next morning found her about the same. I asked Dr. Moseley to see the case with me, and he was convinced of the presence of pus, but could not decide between pus tube and appendicitis. We decided to operate that afternoon, and accordingly I made an incision over Poupart's ligament down to the peritoneum and found the cervix intact. I opened the peritoneum to explore my tumor, but I found it simply an ovarian cyst about the size of an orange, which I removed. The appendix was all right, and I could find nothing in the abdomen to explain the high temperature or the tenderness in the right iliac region. The wound was closed and the woman put to bed, and I was much worried about the temperature. The next morning we examined the blood and found the malarial organism. We put her upon quinine, but, though she made good recovery from the wound, the temperature still continues to-day, two weeks since I saw her. Yesterday the temperature was $103\frac{1}{2}^{\circ}$. This morning it was down to 99° , and thus it continued despite quinine, cold bathing, etc. The case puzzled me so much that I concluded to call Dr. Atkinson and Dr. Howard to see her. They both pronounced it typhoid fever. When we took off the bandages to remove the stitches we found typical rose spots. The spleen was somewhat enlarged. She had no diarrhea and none of the other classical symptoms of typhoid. I believe she has typhoid in connection with her malaria.

Another point in Dr. Neff's paper is the use of the vaginal douche. He spoke of using it in one of his cases which up to that time was doing well. I would like to ask the doctor why he gave the douche and what indications there were for it. I am decidedly opposed to giving even a vaginal douche during the puerperium, and I am of the opinion that the sooner we give up its use the better. In my own work, I never give a douche unless I have some definite reason for it, and then I give it myself and do not trust to a nurse. The greatest difficulty I have is to keep the nurse from giving one. Some otherwise good nurses will give a douche without orders from the doctor. I always ask now from a new nurse if there is a syringe in the house, and, if there is, I lock it up.

DR. WILMER BRINTON.—I agree with Dr. Williams in his view that most cases of fever coming on in the puerperium are of septic character. I think even Dr. Neff's case was such. Puerperal malaria does occur, but it is rare, and belief in its frequency is a dangerous view to hold. In the vast majority of cases it is an exception, and in the absence of bacteriological examination I would believe the case to be septic.

DR. T. A. ASHBY.—This is a very important subject: in fact, nothing is of more importance than to be able to make a clear diagnosis here. I have had three or four cases where a mistake has resulted badly. Several years ago a patient was referred to me four weeks after confinement. She had been

treated for some weeks for typhoid fever. I found the largest pelvic abscess I have ever seen. After its removal she recovered promptly. During all the weeks of her treatment she had never been examined. Several weeks later I was sent for to see a woman in East Baltimore supposed to have typhoid fever. I found a pelvic abscess that contained at least three quarts of pus. She recovered after operation by drainage. I have now at the hospital a woman who was operated upon for an old tubal pregnancy. I think we should be very careful about accepting a malaria diagnosis, unless we have eliminated all the other causes for high temperature. The profession is much too prone to accept malaria as an explanation of the condition.

DR. J. M. CRAIGHILL.—As a general practitioner I find malaria an accompanying trouble in nearly every disease we have in this city. I agree with these gentlemen that where there is fever in the lying-in period there is sepsis in some degree, but I can see at the same time how a woman weakened by such a condition, and who has a malarial tendency, may develop it at that time. It would be a good thing to compare our statistics with those of some district where malaria is not so frequent.

DR. J. W. WILLIAMS.—I would like to add that in our outdoor work—that is, in some hundred and fifty cases—upon careful observation we have found only four women in whom the temperature has gone above 101° , and in all these we have succeeded in getting organisms from the uterine lochia and found the blood normal. There was no malaria found in that number of cases.

DR. JOHN NEFF.—In regard to Dr. Williams' inquiry I would say that the douche was used on the third day because the bladder was somewhat inactive, and I thought it might be stimulated without the use of the catheter. The trouble developed on the seventh day. I omitted to give any quinine, as I usually do on the first day in cases of difficult labor, and perhaps if I had I might have been saved the development of this fever. I am glad to hear that the old method is coming back. A few years ago it required several nurses to give continual douches during the day, and now Dr. Williams says we need none.

Meeting of November 17th, 1896.

The President, WILMER BRINTON, M.D., in the Chair.

DR. C. HAMPSON JONES was elected to membership.

HEMORRHAGE OCCURRING FOUR HOURS AFTER DELIVERY.

DR. BRINTON.—I was called at 3:30 A.M. to-day to see a woman in confinement. She was 42 years of age, and this was her eleventh confinement. The child was delivered at 4:45, and I left at 5:45, when the uterus was contracted and the pulse

normal. About 9 o'clock she was assisted to rise in bed in order to urinate, and immediately the nurse noticed blood coming from her and I was sent for. I reached the house in five minutes, and as I entered the room I thought the woman was dead until I felt the almost imperceptible pulse. Turning down the bedclothes I found that the uterus was above the umbilicus. I immediately introduced my hand and removed not less than a quart of blood clots, and then used methods to restore the circulation. I remained with her until 3 o'clock this afternoon, when I thought she was out of danger. Her pulse was then 125, she has had no more bleeding, and the indications are for recovery.

DR. NEFF.—I should have thought that a good case for transfusion.

DR. BRINTON.—I had not the apparatus at hand. I bandaged her legs up to the thigh at once and gave small quantities of stimulants by the mouth. If I could have had an assistant and the paraphernalia I should have given that treatment.

DR. NEFF.—Is it your custom to give ergot after delivery?

DR. BRINTON.—No; I do not. I have attended this woman in five or six confinements and have always had to give large doses of morphia to control the afterpains, and I left a dose this morning for that purpose. I do not give ergot in five per cent of my cases, but I do not hesitate to use it when I find hemorrhage of relaxation.

DR. NEFF.—I do not use it myself, but I was under the impression that it is the routine practice of many. If I have been using chloroform I always give ergot, and think it has saved me some trouble and never did any harm.

DR. W. S. GARDNER presented a paper entitled

THE DIAGNOSIS OF EARLY PREGNANCY.¹

DR. B. B. BROWNE.—I have listened with a great deal of pleasure to this paper. There are some points in it in regard to the diagnosis of pregnancy in cases of elongated cervix with ante flexion—for instance, in women who have married late in life; in these the body of the uterus is generally harder and you do not get the signs of fluctuation in the uterus, and such cases seldom have the violet discoloration of the vagina. Such women frequently have fibroid enlargement of the fundus, even when pregnancy does not exist. A class of cases that Dr. Gardner did not speak of are those in which pregnancy takes place in retro flexion and retroversion. In those cases the uterus is flattened out considerably, and I have generally found the diagnosis difficult. You cannot make the bimanual examination very satisfactorily in a retro flexed or retroverted uterus, and, of course, you have to be careful not to bring on a miscarriage. In those cases sometimes the fact of the uterus being retroverted or retroflexed also causes the first period, after pregnancy has happened, to be accompanied with

¹ See original article, p. 54.

more or less flow on account of the malposition. In these cases I think the rectal examination most valuable. I do not agree with Dr. Gardner about Hegar's sign; I consider it of great value and think it can almost always be made out.

In those cases of pregnancy in retroflexion the uterus, as a rule, cannot be replaced except under an anesthetic, but in some cases it can be done by putting the patient in the knee-chest position.

DR. J. G. CLARK.—The most valuable of the early signs of pregnancy is that obtained by examination under an anesthetic, with the fingers in the rectum and vagina catching the cervix between them. I have always felt that where there is a question, especially in young women, where the decision must be certain, that the examination under anesthesia is the best method.

DR. L. E. NEALE.—Dr. Gardner is to be congratulated upon being able to make the diagnosis at two months in so many cases. My own experience is that it is much more difficult to make a diagnosis than one might infer from his paper. I place little reliance upon the subjective signs, and of the objective I think the sign of Hegar the most important. I was surprised to hear Dr. Gardner speak of it in a disparaging manner. In medico-legal cases I doubt if the examiner would like to rely upon any sign so early as two months. I look upon diagnosis at the second month as difficult.

DR. GARDNER.—I have very little to add except in reference to the cases of conical cervix that Dr. Browne referred to. I do not see why they should give any trouble. There is no more difficulty in making the diagnosis in such cases than in any other. Where there is retrodisplacement I do not think you can make the diagnosis so well. So far as the point of making a positive diagnosis is concerned, the question I was considering was not whether you should go on the stand with such a diagnosis, but whether you should cut the woman's belly open to examine the tumor or not. We want to know at such a time whether it is something to be removed or whether it is a child.

EXOPHTHALMIC GOITRE TREATED BY ELECTRICITY.

DR. I. R. PAGE.—In the latter part of 1893 there came under my observation three cases of exophthalmic goitre in females, and I have thought that the simple recitation of them might be of more interest than a paper based upon some surgical theme in which many, if not all, of the members of the Society were experimentally better posted than myself. Two of the cases occurred in young white women, aged respectively 19 and 20, unmarried, and hard students. In both cases there was a history of the existence of the disease in other and older members of their families, and I learned upon inquiry that the disease was rather common in the section of country in which they lived. Both lobes of the thyroid gland were invaded; marked tachycardia existed; pulse 100 to 130; both

were leukemic and had some edema of ankles and of the superior eyelids. There was no albuminuria; there was no heart-valve disturbance. Inquiry into catamenial functions elicited nothing markedly abnormal. They complained of headache and great restlessness; fearful about their hearts; given at times to sudden seizures of palpitation—a perfect delirium cardis. It was more for this condition than for treatment of goitre that I was called in. Wishing to ascertain what, if any, effect might be produced by thyroid extract, I ordered this in five-grain doses twice a day; but after a month's trial, as there was no amelioration of the symptoms complained of, I resorted to galvanism, applying the positive electrode to the gland, wetting the electrode with a saturated solution of potassic iodide, and the negative pole to nape of neck. I kept up this treatment for six weeks, applied five to ten minutes every other day. The result was reduction of gland to normal, a gradual slowing of pulse to 78 to 80, return to restful sleep, abolishment of headaches, and increase of body weight, in one six pounds, in the other ten. There has been so far no return of the disease.

The idea that the element iodine might stand in some very definite relation to the metabolism of the thyroid gland, as held by Chatin in 1850, was in mind when it was administered in these two cases by cataphoresis. It seems to me more probable now, since it has been demonstrated by the distinguished Freiburg chemist Baumann, that there exists an organic iodine compound in the normal thyroid gland. Kocher, the noted surgeon at Zurich, only a short time ago, relying upon the fact that the efficacy of iodine in the treatment of diseases of the thyroid gland compared favorably with that of the thyroid extract, suggested that the normal thyroid gland be examined to see if iodine be found in it. Baumann has since detected it in the ash from one gramme of the dried gland.

The third case was that of a white married woman, aged about 40, mother of six children who were born one at a time at intervals of from twelve to eighteen months. Health kept pretty good until the latter part of 1892. She then had a severe attack of the grippe, and, following this, loss of flesh (eighteen pounds), sleeplessness, sense of fear, sudden attacks of palpitation of the heart, dyspnea and sweating, and a rapid enlargement of thyroid gland (right and left lobes). Pulse was irregular, always rapid: s. t. 130 +. Added to all this poor health she became pregnant. During this pregnancy there was severe swelling of ankles and edema of the right upper eyelid; mental condition melancholic, with constant apprehension of sudden death. Examination of urine, negative results. During pregnancy I did not feel justified in doing anything for the exophthalmic goitre, but at the termination of that state (she could not nurse her child) I used tentatively once a day five-grain tablets of thyroid extract; kept this up for several months; gave strychnine and cod-liver oil. As she appeared no better, in fact got weaker and thinner, I then used general faradization, rest and forced feeding, and massage.

On this improvement set in slowly. After six weeks I began treatment by galvanism—potassium iodide solution on positive pole on the thyroid, negative pole on nape of neck; every other day about eight minutes' current, strength about four milampères. There was subinvolution of uterus, and twice a week I applied iodine tincture to cervix and passed a current of ten milampères through uterus, positive pole in cervix, negative pole over pubis. The melancholia, tachycardia, enlargement of thyroid gradually left. She regained all her normal weight and is now one of the female cyclists who adorn our highways.

DR. J. G. CLARK.—It would seem as if the use of iodine is a very rational procedure. Dr. Abel, at the Hopkins, has followed up the work of Baumann, and his researches in a few cases give practically the same results as obtained by the latter. He proves from this that the administration of iodine, whether by the mouth or galvanism, is rational. It seems to be one of the cases where there is probably deficiency in the production of iodine, and it may be made up to them, just as thyroid is beneficial in cretinism.

DR. W. A. B. SELLMAN.—I think Dr. Page has struck the right treatment in the use of the cautery. I have had similar cases in which I did not use the iodine, but simply the galvanic current with common salt solution, and had good results with restoration of health.

DR. PAGE.—My attention was called to the electrical treatment by Rockwell's statement that out of forty-five cases treated he had improved or probably cured fourteen and that others were much improved. I believe that the iodine had quite an effect in the rapid disappearance of the goitre and the accompanying symptoms.

DR. GEORGE H. ROHÉ.—I would like to ask Dr. Page whether he noticed any diminution of resistance to the passage of the electric current in his cases. I would like also to call attention to the fact that there is a decided difference in cases of goitre. An old case of encysted goitre does not yield to electrical treatment, certainly not rapidly. Recent cases, such as are found in young women, as two of Dr. Page's cases were, young women from 18 to 23, with enlargement of the gland but with no particular cardiac or neurotic symptoms, will show beneficial effects from the use of galvanism to the throat, but the old cases have shown little improvement in my hands.

DR. PAGE.—I did not notice any diminution of the resistance to the current.

W. W. RUSSELL,
Secretary.

REVIEWS.

A TREATISE ON OBSTETRICS FOR STUDENTS AND PRACTITIONERS. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Clinical Professor of Obstetrics in the Jefferson Medical College; Director of the Jefferson Maternity; Visiting Obstetrician to the Philadelphia Hospital, etc. 8vo. Pp. 553. With 217 illustrations in the text and 30 plates. Philadelphia and New York: Lea Brothers & Co., 1896.

A new work on obstetrics by so well known a teacher as Dr. Davis is sure to attract wide attention, and must pass through a fire of criticism and approval before being finally accepted at its true value.

In this work the marks of originality are evident, and the strong personality of the author is stamped on every page. He divides his subject into seven sections, embracing Pregnancy and Labor, Pathology of Labor, Obstetrical Operations Abortion, Extrauterine Pregnancy and the Puerperal State, Infancy in Health and Disease, Diseases of Infancy, and the Jurisprudence of Obstetrics. There are some marks of hasty work and some omissions, so that the book is hardly as complete in character as is claimed in its preface. The strictly obstetric portion fills only four hundred and forty-three pages. Its teaching is eminently judicious and practical, yet in places it lacks the detail necessary for a beginner. Most of the illustrations are excellent, though some of the original photographs plainly demonstrate that the modern craze for photographic accuracy often gives results inferior in teaching power to well-drawn sketches. Taken as a whole, the work contains many original ideas, is concise, forcible, and will prove of value as a book for practical use by those who already have a fair knowledge of the branches underlying the practice of the obstetric art.

TRAITEMENT DE L'AVORTEMENT INCOMPLET. Par LES DRS. CHALEIX-VIVIE ET AUDEBERT, Chefs de clinique obstétricale à la Faculté de Médecine de Bordeaux. Paris: Masson et Cie., 1896.

The work opens with a description of the usual course of abortion and its possible results, of which sepsis and hemorrhage are most common. Chapter I. is devoted to a careful consideration of the diagnosis of retention of placental tissue, particular stress being laid upon the symptoms of subinvolution and persistent hemorrhage, with the signs of sepsis if that condition supervenes. The succeeding chapters are given to the subject of treatment under various circumstances, and in the last the technique of curettage is described. Reports of forty-nine cases are embodied in the text. Expectant treatment, after

the diagnosis has been made and in the absence of any accident, is imprudent. The authors advise removal of the retained tissues by the finger or curette. Digital removal requires a complete examination of the uterine cavity with one or two fingers, which must penetrate as deep as the insertion of the placental structures. This method is often rendered difficult by narrowness of the vulvar orifice, impossibility of drawing the uterus down, and by a depth of the uterine cavity too great for the exploring finger. If the digital method fails, curettage must be employed, and its thorough performance should be assured by careful examination with the finger. This operation is believed to be inefficacious only in timid, negligent, or too hasty hands. Performed by the careless or unskilled it is dangerous. The use of placental forceps and branched dilators is strongly condemned.

H. D.

AN ATLAS OF OPHTHALMOSCOPY. With an Introduction to the Use of the Ophthalmoscope. By DR. O. HAAB, Professor of Ophthalmology, University of Zurich. With 60 colored plates. New York: William Wood & Company, 1896.

AN ATLAS OF THE NORMAL AND PATHOLOGICAL NERVOUS SYSTEMS. Together with a Sketch of the Anatomy, Pathology, and Therapy of the same. By DR. CHRISTFRIED JAKOB, Practising Physician in Bamberg, formerly First Assistant in the Medical Clinic at Erlangen. With 78 plates. New York: William Wood & Company, 1896.

ANATOMICAL ATLAS OF OBSTETRIC DIAGNOSIS AND TREATMENT. By OSCAR SCHAEFFER, M.D. With 145 illustrations. New York: William Wood & Company, 1896.

In this series of hand atlases the publishers have endeavored to present in compact form the principal features of the subjects considered. The difficulty of giving an accurate verbal description of the appearance of pathological conditions is nowhere more marked than in the case of retinal lesions, and colored plates afford the only satisfactory way of portraying them. For this reason, in the Atlas of Ophthalmoscopy the text is entirely subordinated to the illustrations, being limited to an introductory chapter upon the use of the ophthalmoscope and the appearance of the normal fundus, and to descriptions of the plates arranged to face each. Rare lesions have been omitted in order to allow more extended description of those commonly found.

The Atlas of Nervous Diseases also deals with a subject which furnishes an excellent field for pictorial treatment, and the author has not neglected his opportunity. In this work the illustrations are supplemented by a considerable amount of reading matter treating of the morphology, development, structure, anatomy and physiology, and pathology of the nervous system and treatment of its diseases. The plates include both original drawings and photographs of serial sections of the nervous system, as well as schematic drawings of the same, schematic representations of the course of nerve fibres, and

carefully selected photographs of the various lesions. The work can be most thoroughly commended.

The Atlas of Obstetric Diagnosis and Treatment is written upon the same lines as the other members of the series. The author continually holds in mind the anatomical structure of the parts concerned, and draws attention to their mechanical effect upon the processes of pregnancy and labor under normal and pathological conditions. The illustrations are, as in the other volumes, colored plates, and are well executed and colored. They occupy the first fifty-six pages; the remaining one hundred and seventy-eight pages are devoted to the text, which is divided into nine sections, as follows: 1. The Normal Anatomy of the Sexual Organs during Pregnancy; 2, Pelvic Deformities and their Influence upon Pregnancy and Labor; 3, Displacements, Tumors, and Abnormities of Development of the Sexual Apparatus, and their Influence upon Pregnancy and Labor; 4, Rupture of the Uterus and Lacerations of the Cervix; 5, Abnormal Implantation of the Ovum, Extrauterine Pregnancy, and Placenta Previa; 6, Anatomy and Etiology of the Premature Expulsion of the Ovum; 7, Abnormal Presentations, Abnormal States of the Funis and Membranes, Premature Detachment of the Normally Implanted Placenta; 8, Disturbances of Labor caused by Abnormal Uterine Contractions and by General Diseases of the Mother; and 9, General Observations on Obstetric Therapeutics.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.
Vol. XXI. Pp. 490. Philadelphia: William J. Dornan,
printer, 1896.

The volume contains the papers and discussions of the twenty-first meeting of this famous society, held in New York City in May last, of which a full abstract has already appeared in our pages.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY,

IN CHARGE OF THE EDITOR AND DR. JULIUS ROSENBERG.

PEDIATRICS,

IN CHARGE OF DR. A. RAYMOND-SCHROEDER.

OBSTETRICS.

Importance of Abdominal Palpation compared to Vaginal Examination.—Ahlfeld¹ does not agree with the recommendations of Leopold to employ abdominal palpation exclusively as a means of diagnosis during the progress of labor. Abdominal palpation alone is not sufficient to recognize existing or impending dangers; intrapartum its execution is difficult and, if thoroughly performed, not free from danger. The

obstetrician who manages a labor case without performing vaginal examination is largely trusting to chance. With proper asepsis vaginal examinations are free from danger. [Both Ahlfeld and Leopold occupy extreme positions. Abdominal palpation and vaginal examinations are of great and unquestionable value, and used conjointly they enable us to make a correct diagnosis. Leopold in his first essays drew attention to the absolute neglect of abdominal palpation and pointed out its value as a means of diagnosis; he also showed that puerperal infection often follows vaginal examinations and that a decrease in the number of examinations decreases the dangers of infection. Whenever the physician is not positive that everything proceeds normally a thorough vaginal examination is certainly indicated. It would be bad obstetrics to wait until actual complications have appeared, but the frequent and aimless vaginal examinations cannot be too severely condemned. Concerning the danger of abdominal palpation, we cannot recall a single case where an accident has followed its employment, nor can we imagine that such could occur except its execution had been most brutal.]

Diagnosis of Pregnancy in the Early Months.—Rinmann² observed in two cases, as an early symptom of pregnancy, slender cords radiating from the nipple, which he believes to be the hypertrophic acini of the glands. Secretion was not yet present. Rinmann's observation has been confirmed by other observers.

Diagnosis of Twin Pregnancy.—The method of Ahlfeld³—that is, the simultaneous auscultation of the fetal heart sound by two persons—proved in one important case especially successful. A woman with a markedly contracted pelvis, who had been delivered of dead children, entered the clinic for the induction of premature labor. Twin pregnancy was suspected, and if this would prove true the induction of labor would become superfluous. Ahlfeld's method showed a difference in the fetal heart sounds on the right and left sides, which induced him to postpone action. The woman was delivered of two healthy and living children. Although it is desirable that the auscultation should be simultaneous, alternately listening on the right and left sides may suffice. It is, however, important to keep mother and fetus in a position of absolute rest, otherwise the observation may be deceptive.

The diagnosis of twin pregnancy can often be made, after the cervix has partially dilated, by noting on palpation the presence of two bags of waters. V. Bué⁴ calls attention to a possible error of diagnosis by reporting a case in which he palpated, after rupture of the amniotic sac, a presenting fetal head and between this and the symphysis a second bag of waters. As the head passed the perineum this sac ruptured and discharged a small amount of fluid. Subsequent examination of the placenta and membranes showed the existence of a number of collections of fluid between the amnion and chorion, one of which had simulated the membranes of a second fetus.

Spontaneous Evolution.—D. Dahyabhai⁵ reports the ter-

mination of a hand-and-shoulder presentation by the birth of a dead child by spontaneous evolution.

Face Presentations.—Auscultation of the fetal heart is suggested by A. D. Wilkinson⁶ as an adjunct to palpation in the early diagnosis of face presentations. The fetus occupies a higher position than in vertex presentations, so the point of maximum intensity of the heart sound is above the point at which it is heard in vertex cases; also, the extension of the head removes the adjacent part of the back from contact with the abdominal wall, so that the sounds are heard better at the point where the fetal chest lies against the abdomen; thus when the back is felt on the left side of the uterus the heart sounds are heard most distinctly upon the right. The high position of the heart sounds, and their situation upon the opposite side from what palpation would indicate for a vertex presentation, justify at least a suspicion that the face presents. The management of these cases is discussed.

Changing of the Face into an Occiput Position.—Knorr⁷ writes that the technique of this manipulation is not difficult, but should be reserved until an actual disturbance in the progress of labor has occurred. The so-called prophylactic changing of all face presentations is rejected as bad practice.

Pregnancy in Almost Complete Occlusion of Hymen complicated by Nephritis and Accidental Hemorrhage.—The woman came under Köstlin's⁸ observation when in labor, the attending midwife sending for medical aid. The examination showed that the hymen had only a small, pinhole opening, through which conception had taken place. The hymen was very elastic—the examining finger could push it well up into the vagina; this explains why intercourse had taken place without any difficulty. The hymen was divided through cross incisions, after which the further progress was left to Nature. Delivery of a macerated fetus occurred a few days later.

Unyielding Hymen.—Pregnancy following imperfect coitus on account of unyielding and apparently imperforate hymen is reported by G. A. Himmelsbach.¹⁰

Pregnancy in a Rudimentary Uterine Horn.—A patient of T. S. Cullen and G. L. Wilkins,⁹ 29 years of age, died in the fourth month of pregnancy, with signs of hemorrhage, six hours after rupture of the sac. The abdomen was found to contain a three to four months' fetus with its membranes and four thousand cubic centimetres of blood. A ruptured pregnant left rudimentary horn was attached to a right-horned uterus by a muscular band containing a canal five millimetres in diameter. The corpus luteum was on the side opposite to that of the pregnancy, migration of the spermatozoa and ovum probably occurring *via* the abdominal cavity. Rupture in these cases usually occurs between the fourth and fifth months, though they may go to term. Anatomically they differ from tubal pregnancies in that the uterus is flexed toward the side opposite to the pregnancy, that the pedicle of the fetal sac springs from the uterus at the internal os where the tube comes off, and that the round ligament springs from the outer

side of the sac, not the uterus. Clinically the symptoms in tubal pregnancy and pregnancy in a rudimentary horn, when rupture has occurred, are virtually the same. The treatment is amputation of the rudimentary horn.

Double Vagina ; Labor.—E. C. Dudley¹⁰ reports a case of double vagina which came to him during pregnancy. He removed the vaginal septum and the woman has since been delivered of a living child. A secondary small placenta with a rudimentary cord was found.

Pregnancy and Labor in Uterus Duplex Septus et Vagina Septa.—Beckmann.¹¹ The patient came under observation when three months pregnant, at which time the diagnosis of uterus duplex was readily made. At the time of labor the os of the non-pregnant uterus took part in the dilating process, and an examination showed that the two uteri were in the lower segment, separated only by a septum which was partly continuous with the vaginal septum. During the further progress of labor the former became obliterated, so that finally only one os could be felt; the vaginal septum was also torn by the presenting breech. Labor and puerperium were perfectly normal, but on the third day post partum the left, non-pregnant uterus expelled a complete decidua.

Labor after Antefixatio Uteri.—Grusden.¹² The basis of the paper is the material of the Kiel Clinic, and comprises 190 cases of retroflexion which came under operative treatment. The operations performed were ventro-, ventro-vesico-, and vesicofixation, 86 cases; Alexander's operation, 54 cases; and vaginofixation after Mackenrodt and Dührssen, 50 cases. Conception occurred in 31 cases, in many after long sterility. Four pregnancies after ventro-vesicofixation proceeded without any unusual complications; only 1 case, which was not confined at the time of the report, had difficult urination after the third month. In 2 cases the labor was perfectly normal; the remaining 2 are still pregnant. The uterus retained the normal position. After Alexander's operation conception took place in 23 cases; of these 2 terminated in abortion, in 3 labor was premature, while 18 were confined at full term after a normal labor. The only complication due to the operation was pain in the scars. In 3 cases which conceived after Mackenrodt's vaginofixation, none of the complications described by Strassmann, Wertheim, Graefe, and others were observed; pregnancy and labor showed no abnormalities. Only one conception occurred after Dührssen's operation, which terminated in abortion in the second month, after recurring retroflexion.

Abnormal Insertion of the Placenta.—Among the possible results attributed by F. Loir¹³ to an abnormal insertion of the placenta—that is, not in the fundal zone, but omitting placenta previa—are hemorrhages during pregnancy and labor, and, after the latter, mobility of the fetus predisposing to unfavorable presentations, slow engagement of the vertex in the pelvic cavity, frequency of O. P. presentations, fetal asphyxia, uterine inertia, premature labor without early rupture of the

membranes, and early rupture of the membranes either followed by labor at term or causing premature labor.

Ectopic Gestation.—Homer Gage¹⁰ gives a report of seven cases of ectopic gestation operated upon with one death. E. C. Dudley¹⁰ records one case with death during the operation. Another fatal case is described by A. R. Matheson.¹⁰ K. F. M. Sandberg¹⁰ reports a case operated upon, but does not mention the result. W. W. Ralston¹⁰ records a fatal case of ectopic pregnancy, the patient having refused operation. At the time of rupture and later, pain was referred to the epigastric region.

Uterine Fibroids complicated by Pregnancy.—A. Vander Veer¹⁶ relates the history of two cases of uterine fibroids complicating pregnancy, complete supravaginal hysterectomy at the fourth month being followed in each case by recovery.

Labor complicated by a Cervical Fibroid.—Flaischlen.⁷ Besides the tumor, which obstructed the natural outlet, placenta previa was present. The pains were weak and ineffective, and labor was protracted over several days. The woman was delivered by craniotomy; the puerperium was normal. The tumor was removed six weeks post partum.

Eclampsia.—L. Mangiagalli¹⁷ says that in eclampsia preventive treatment is highly beneficial; that medical treatment, including bleeding, drastics, morphine, chloral, chloroform, veratrum viride, and diaphoretics, is the only form applicable in eclampsia after delivery. The prompt emptying of the uterus is the most important point. When eclampsia occurs during labor, delivery should be hastened by multiple incisions of the cervix if dilatation is insufficient. Occurring during pregnancy, labor should be induced by rupture of the membranes and the use of morphine, chloral, or veratrum viride in large doses. If the case is grave, and there is no hope of waiting until the cervix becomes softened and dilated, forcible dilatation is better than deep incisions. Under the same circumstances, or when forcible dilatation is difficult or contraindicated, Cesarean section is justifiable, especially when the fetus is at term and alive. Every intervention should be under profound chloroform narcosis.

Treatment of Eclampsia.—Veit.⁷ It is impossible to recommend a uniform plan of treatment; there is, however, no doubt in the author's mind but that a large number of cases would and do recover without any and with every treatment. The claim that the prognosis is bettered through rapid delivery by accouchement forcé or Cesarean section is as yet not substantiated, as are also the reported favorable results from venesection. The best method so far seems to be the administration of large doses of morphine. A rational therapy of eclampsia is not possible until the pathology of the disease is absolutely clear; it is not improbable but that different cases have a different etiological basis. The hastening of labor by harmless means, rupture of the membranes, delivery after full dilatation, large doses of morphine for the suppression of the attacks, the non-administration of food, per os, to unconscious patients, and the induction of diaphoresis by external means,

seem to offer the best chances to the patients. There is practically no reason why an attack of eclampsia in itself should be considered so grave as to justify radical operations, which may be safe in the hands of single operators, but which subject the patient to great risks if performed by the profession at large. In exceptional cases, however, exceptional operations are justifiable.

Pulmonary Embolism in Placenta Previa.—Lesse.³ This is the fourth case occurring at the Berlin Maternity Hospital and concerns a IVpara with a marginal placenta previa. Chloroform was administered and version was performed. While in the act of pulling the foot down respiration suddenly ceased, then became superficial and gasping. In spite of saline infusion, heart massage, and artificial respiration, death occurred five hours later. A post-mortem showed numerous air bubbles in the right auricle and pulmonary artery. Other possible causes, as acute anemia, chloroform intoxication, or that the air might be the result of putrefactive changes, could be excluded. Only a small piece of the placenta was detached from the uterine wall, and the air must have entered the open lumen of the vessel during the performance of version.

GYNECOLOGY AND ABDOMINAL SURGERY.

The Abdominal Incision.—Howitz¹¹ says that a good and solid cicatrix depends upon cleanliness and antisepsis of the wound, union by first intention, and upon the quality of the borders of the incision, the manner of placing the sutures, and the material used for suturing. Small incisions give more solid cicatrices than very long wounds. Howitz believes that the linea alba is not the best point for securing a good cicatrix, because in this situation the borders of the incision are thinner than at one side of that line, while the thicker the borders the greater are the chances of a good cicatrix. This incision also divides a thick layer of fat which is poorly vascularized and incapable of strengthening a cicatrix. This layer of fat, running to the symphysis, is also a good conductor of pus in case of suppuration. The incision is liable to open the sheath of the rectus, if not kept strictly median—another cause of irregularity of the borders of the wound. After closure of the incision the recti produce by their contraction a tension in the cicatrix, thinning it and favoring the formation of a hernia. For these reasons Howitz makes the incision parallel to the linea alba and about two centimetres to the side of it, passing through the sheath and separating the fibres of the rectus. This gives thicker lips containing little fat, perfectly regular, and consisting mostly of muscular fibres which unite solidly. Muscular action causes no traction laterally upon the cicatrix. Suture in layers gives equal adaptation and good union, but leaves buried sutures in the cicatrix; if absorbable, asepsis is doubtful and they may be too early absorbed; if of metal or fishgut, they leave a series of knots in the cicatrix which must weaken the latter and may cause difficulty when the abdomen is distended as in pregnancy. Heppner's figure 8 suture combines

the advantages of the simple suture and that in layers, giving good union and being removed, when this is secured, in two weeks. The suture unites the lips of the incision in two layers, separated by the plane in which the loops of the 8 meet. It is removed by pulling upon one end with a blunt hook, cutting it, and withdrawn the next day by pulling upon the other end. Fishgut is the suture material advised. It may be used after boiling in five per cent carbolic for half an hour. It is as strong as metal, does not swell like silk, and may be left in the body if desired. Howitz inclines to the view that the peritoneum should not be included in the suture, in order to avoid a projection of peritoneum into the abdomen and increasing the chance of hernia. The use of artery forceps to control bleeding in the abdominal incision should be avoided, as they compress the tissue in the line of union. Temporary sutures may be used instead if hot compresses fail.

Anatomical and physiological observations lead F. Kehrer¹⁸ to formulate the following rules in the making of the abdominal incision and its subsequent closure: 1. The reconstruction of the aponeurotic lamella between the recti muscles should be sagittal and frontal in character. 2. The recti muscles and their sheaths must be kept intact. If, therefore, the linea alba consists of a sagittal lamella, which is generally the case, then the linea alba should not be divided, but the incision is to be made on the side of the linea alba and open the sheath of one rectus muscle. In cases where the linea alba has the character of a frontal aponeurosis the cut should be made through it. The incision is closed by sutures which resemble the figure 8 sutures. This method is rarely followed by supuration of sutures: the scar is strong and firm, and a subsequent stretching need not be feared.

In cases where only a small opening of the abdomen is required, Küstner²¹ advises a transverse incision above the symphysis which only divides the skin and subcutaneous fat. The opening is drawn diagonally apart, after which the linea alba is divided longitudinally. This method avoids a large, disfiguring scar. Küstner reports eight successful cases.

Exploratory Abdominal Section.—Exploratory abdominal section is advised by J. H. Carstens²⁰ in acute cases with severe symptoms which threaten life if not promptly removed, and in chronic cases in which, in spite of treatment, the patient continues to be more or less of an invalid or steadily becomes worse.

Pelvic Elevation in Surgical Operations.—*Apropos* to the claims of priority between Freund and Trendelenburg, Fuhr^{*} draws attention to a publication by Saretetus which appeared in the year 1666. Saretetus dwells upon the advantages of pelvic elevation in hernia operations and Cesarean section, and amplifies his remarks with the illustration of a crude but serviceable operating table.

Sterilization of Catgut.—N. Senn²² claims that catgut is made absolutely sterile by Hofmeister's method, which, as modified by Senn, is: The catgut is wound tightly around a glass tube, immersed twelve to twenty-four hours in a two to

four per cent aqueous formalin solution, immersed in flowing water at least twelve hours to remove the formalin, boiled in water from ten to fifteen minutes. The catgut is then placed in a mixture of absolute alcohol 950, glycerin 50, finely pulverized iodoform 100. This formalin catgut can be reboiled almost any number of times without impairment of its strength.

Non-draining Silk as Suture Material.—The silk commonly used is hydrophic and therefore imbibes the secretions of the wound. This leads to infection from the skin and suppuration of the sutures. Schäffer¹⁹ impregnates the silk with gutta-percha, through which it loses its hydrophic character, yet remains as soft, elastic, and amenable to sterilization as before.

Parotiditis following Celiotomy.—The history of two cases of parotiditis, one suppurative, following celiotomy is given by W. Krusen.¹⁰ Recovery in both.

Fatal Pulmonary Embolism in Gynecological Diseases.—Gessner.⁷ In addition to inflammatory processes, pathological changes of the heart are etiologically of the greatest importance. Mahler drew attention to the increased pulse frequency as a diagnostic sign of impending thrombosis. Although correct in many cases, it cannot always be relied upon. The author reports twenty cases, with a detailed history and post-mortem examination.

Differential Diagnosis of Shock, Hemorrhage, and Sepsis.—In the differential diagnosis of these conditions the pulse is considered by Eugene Boise²³ as the most reliable indicator, and he believes that it should for this reason be studied by the surgeon before and immediately after operations as well as subsequently. From his article upon the subject the following features may be gathered as diagnostic points: In rapid hemorrhage there is marked pallor; the pulse becomes rapid and feeble some time after the operation, tends to grow worse, and becomes smaller and more compressible; the temperature is normal or subnormal; the patient is excitable and restless. In shock there is besides pallor a lividity, especially under the finger nails and in mucous membranes; the pulse becomes rapid and feeble, usually before leaving the table, but shows a natural tendency to subsequent improvement; the early temperature is depressed; there is mental apathy. Sepsis occurs gradually; the color is normal or increased; the pulse grows more rapid but harder; the early temperature is high; the patient is likely to be excitable.

Bicycling from a Gynecological Point of View.—Floel.²⁴ Bicycling exerts a favorable influence in all cases where the uterine disorders are due to a relaxed condition of the parts. In chronic inflammatory conditions it may be indulged in with care and moderation, but must be interdicted in all acute cases. Great benefit is derived from cycling in lack of appetite, chronic constipation, sleeplessness, and general malaise—in fact, in all disorders due to insufficient exercise. The patients should not feel discouraged if improvement is not rapid or is even preceded by an aggravation of symptoms. It has a favorable influence in disordered menstruation, especially in amenorrhea

and dysmenorrhea. Anemic, badly-nourished women gain in weight, while those who have a superabundance of fat are apt to lose. It is the physician's duty to draw attention to proper dressing before permitting active exercise. A corset should not be worn, as it interferes with respiration.

Alexander's Operation in the Treatment of Retroflexio Uteri.—Steinthal²⁴ performed this operation, of which he is an ardent admirer, in twenty-four cases. Through his experience he arrives at the following conclusions: The operation is free from danger, and to the practised operator its technique is not difficult. It has no evil influence in subsequent pregnancy and labor, and inguinal hernia does not follow properly performed operations.

Alexander's operation has only orthopedic value. It corrects the malposition of the uterus, but pelvic inflammations must be treated and cured by other means and methods. Quick and permanent cure is its advantage over treatment with pessaries. The operation is useless when the symptoms for which the patient seeks relief are not due to uterine malposition, but are caused by pathological changes of the uterine parenchyma and the adnexa.

Retroadisplacements of the Uterus.—Robert Abbe²⁵ describes the method which he employs for fixing the round ligaments in Alexander's operation. It consists in incising the intercolumnar fascia, which allows the round ligament to be readily found, drawing out this ligament as far as desired, and finally using it as a continuous suture passing through and approximating the sides of the inguinal canal. The remainder is turned back and stitched over the lower end of the wound, the terminal portion, which has been handled, being removed.

C. P. Noble¹⁰ treats of the course of pregnancy and labor as influenced by suspensio uteri, and reports several cases illustrating various complications which he has seen follow the operation. He thinks that in subsequent pregnancies examinations should be made, especially about the seventh and eighth months, and labor be induced from four to six weeks before term if the cervix be found drawn up out of the pelvis, and particularly if a mass of uterine muscle obstructing the pelvic inlet can be made out. J. M. Fisher¹⁰ relates the favorable results in two cases in which ventral suspension had been performed, and A. J. Downes¹⁰ describes the technique employed by him in this operation.

REFERENCES.

- ¹ Deutsch. Med. Woch., No. 44. ² Cent. f. Gyn., No. 43. ³ Zeitschr. f. Geb. u. Gyn., Bd. xxxv., H. 2. ⁴ L'Obst., Nov. ⁵ Lancet, Nov. 28th. ⁶ Med. Rev., Nov. 21st. ⁷ Arbeit. aus dem Gebiet der Geburtshülfe u. Gyn. ⁸ Münch. Med. Woch., No. 47. ⁹ Johns Hopkins Bull., vol. vi. ¹⁰ Am. Gyn. and Obst. Jour., Nov. ¹¹ St. Pet. Med. Woch., No. 40. ¹² Münch. Med. Woch., No. 46. ¹³ Buff. Med. Jour., Dec. ¹⁴ Jour. de Méd. de Paris, Nov. 8th. ¹⁵ Kans. Med. Jour., Nov. 28th. ¹⁶ Med. News, Dec. 12th, ¹⁷ Ann. Gyn. and Ped., Dec. ¹⁸ Cent. f. Gyn., No. 46. ¹⁹ Med. Rec., Nov. 28th. ²⁰ Monatschr. f. Geb. u. Gyn., Bd. iv., H. 3. ²¹ Jour. Am. Med. Assoc., Dec. 12th. ²² Ann. Gyn. and Ped., Nov. ²³ Deutsch. Med. Woch., No. 48. ²⁴ Ann. Surg., Dec.

DISEASES OF CHILDREN.

Alcoholic Intoxication, Acute.—C. A. Herter² reports a case in a young child in which this condition was followed by convulsions and paralysis of cerebral origin and by multiple neuritis.

Alcoholism of Nursing Infants.—E. Valin³ states that in rich families in Paris it is a very common thing to give the wet-nurse a litre or a bottle of good wine, to which one or two bottles of good, strong beer are frequently added. As a result the child often becomes nervous and irritable, and is not improved in condition by nursing; its sleep is troubled, or it may have insomnia followed by a heavy, almost comatose sleep, during which the face is distorted and the limbs subject to brusque movements. Convulsions may occur. These symptoms may disappear, only to recur; the parents attribute them to dentition; the physician suspects meningitis, or, taking the nurse aside, questions her and finds that she has been adding a few glasses of brandy to her daily diet, or has taken wine and beer or a few bottles of "half-and-half." Upon the nurse's leaving off these stimulants the infant usually becomes cured. The author thinks that half a litre of wine a day can do no harm, but deprecates the idea that beer and wine are necessary to the formation of milk. A mixture of milk and sweetened water he considers more to the purpose, but seems to think his suggestion a trifle radical for France.

Bactæria in a Child.—Arthur Clopatt⁴ reports the case of a little girl of 5 years who, after an attack of whooping cough, passed urine of a remarkably fetid nature. This was subjected to an examination and was found to contain masses of the bacterium coli communis. A milk diet and the administration of salol not having the desired effect, the bladder was washed out daily with a 1:1000 solution of silver nitrate, and after about fifteen days of this treatment the urine was found to be normal.

Cholera Infantum.—Marshall L. Brown⁵ writes that in this disease it is the continued action of certain poisons upon the nervous system, and, through the nervous system, upon the stomach and intestines, that we wish to counteract and inhibit. The condition existing is one of extreme hyperemia of the whole alimentary tract, a paralysis of the vasomotor system of the nerves presiding over this tract, resulting in a continuous transudation of serum from the blood, vomiting, diarrhea, and shock. The author believes he has found a remedy for the disorder in the bromide of potash. This drug is absorbed by the mucous membrane of the entire alimentary tract when it is placed in contact with the membrane in proper solution. When so taken into the blood it remains unchanged and passes out of the system without decomposition, eliminated by the skin and kidneys. It exerts a remedial effect by its action on the vasomotor system which controls the contraction of the arterial vessels, thus reducing the supply of blood to all the tissues, but acting especially upon those superabundantly supplied with blood. It increases and exaggerates the arterial tonicity,

tetanizes the arterioles, slackens or arrests the circulation, and produces an oligemia of all tissues and consequently of the alimentary canal. It thus antagonizes the action of the poisonous proteids which cause the characteristic inflammation, and is therefore a specific when given in season and in sufficient dosage to produce a physiologic action. George H. Rice⁹ presents an article discussing the treatment of this disease.

Chorea.—Henry Hatch¹⁰ presents a general review of this subject. In regard to the treatment the author states that he has come to look upon strychnine as a specific. He treats all complications that occur, but persists at the same time in the use of the strychnine. A. J. Guck¹¹ gives a report of two typical cases of chorea rheumatica. A case of chorea minor involving the ciliary muscle is reported by Herman B. Sheffield.¹¹

Circumcision.—In an article on this subject W. B. Parks¹² states that he believes this operation unnecessary in young children, and advocates dilatation and breaking up of the adhesions.

Craniectomy for the Relief of Idiocy.—Villeneuve¹³ reports four cases of this operation. He is not an enthusiast. In the first case there was some improvement; in the second a rapid improvement, which soon ceased and was followed by attacks of epilepsy; in the third case the operation caused no amelioration of the condition, and in the fourth death occurred on the third day after the operation. Villeneuve does not intend to pursue further investigations in this direction.

Diphtheria.—An article on orrhoterapy at the Nursery and Child's Hospital during 1895 and 1896 is contributed by Allen M. Thomas.¹⁶ The author believes that the value of diphtheria antitoxin, in the record of results achieved and published, was never more conclusive than now, and no factor of that value more successful in its practical application than its use as an immunizing agent. During and since a previous epidemic a peculiar feature among the children in the hospital has been that many of these patients, apparently well in other respects and with no visible or constitutional disturbance, would give evidence by the culture test of the Klebs-Löffler bacillus in the discharge from the nose, and seemed, in some instances at least, to be the cause of outbreaks of decided cases of diphtheria in the same wards before showing any signs of it themselves. The lesson taught was to beware of a running nose, each case of which should be considered worthy of special investigation. Cultures were invariably taken from nasal discharges as well as from all suspicious sore throats, and if the Klebs-Löffler bacillus were present the children were isolated and subjected to treatment, and all the remaining children in the respective wards were given immunizing doses. In all there were eighty cases having the discharge from the nose; in these the diphtheria bacilli could be demonstrated in cultures three and four weeks after the most persistent and energetic treatment. These cases were immunized according to the general custom. None developed a

clinical diphtheria or other untoward effect, though the majority at the outset were in poor physical condition. The positive value of antitoxin as a prophylactic agent is very pointedly evidenced from the fact that last year there was a sudden cessation of an epidemic at this institution after immunization was practised, and this year by the escape from the usual and, for the past many years, more or less severe and fatal epidemic of diphtheria in the various wards of the hospital. In several instances in which a mother with true diphtheria refused to be separated from her suckling infant or young child, she was permitted to keep her young child with her in the diphtheria ward during her entire illness, the child being carefully watched and immunized. In no case of this sort did the child develop diphtheria. Monti⁷ presents a further contribution to the use of antidiphtheritic serum. The article is a long and very thorough study of diphtheria and its treatment, and the conclusions reached are as follows: Diphtheria antitoxin is the very best remedy for the cure of diphtheria; in the fibrinous form the mortality is reduced to ten per cent, and even in laryngeal cases the necessity for surgical interference is reduced to a minimum; in the mixed form the serum does good if used early and in sufficiently large doses; in the gangrenous form only a few cases can be cured, and then only with early and large dosage. Further investigations are necessary to perfect the treatment of mixed infections, but Monti regards the antitoxin as the best achievement of modern medicine. Graetzer¹⁷ reports ten cases of diphtheria treated with tincture of myrrh, all of which recovered. They needed no serum or other treatment. The theory is that the myrrh causes increase of the white blood cell, thus allowing the system to fight the bacilli. Another theory is that the myrrh neutralizes the toxins and ptomaines. By combining the myrrh and serum treatment, Graetzer is sure that the mortality of diphtheria will be reduced to the minimum. Passini¹⁸ gives the results of some experiments on the duration of antidiphtheritic immunity. They tend to show that ten to eleven days is the limit of the duration of immunity for horse and man (laboratory results). Practically, the immunizing dose should be repeated in three weeks. G. Variot¹⁹ reports the case of a child suffering from diphtheria and at the same time from a pre-existing nephritis, evidenced by the amount of albuminuria and edema. An injection of antitoxin was given, but, contrary to what might have been anticipated, no evil result followed; the urine was notably diminished in amount for a while, and the amount of albumin increased, but the child made a good recovery. M. Vidal,¹⁹ in a study upon the action of the serum, sums up as follows: 1. In thirteen cases of diphtheria treated by Roux serum and resulting in recovery, there was no albuminuria and no eruption worthy of note; 2. two cases of diphtheria consecutive to scarlet fever died in spite of the serum, but there was no complication or accident which could in any way be attributed to the serum; 3. there were two cases of a papular erup-

tion, one of which could scarcely be attributed to the serum; 4, in three cases a prophylactic injection caused no morbid symptoms of any kind; 5, in one case of preventive injection, diphtheria occurred eight or nine weeks later, and in one case of diphtheria treated by the serum the disease recurred fourteen months later. In discussing paralyzes of central origin following diphtheria, M. Manicatide⁴ expresses the opinion that we may distinguish several groups of paralyzes which follow diphtheria, or rather different forms of action of the toxin of Löffler's bacillus: 1. A first group, hitherto limited in extent, of paralyzes due to muscular lesions without any nerve lesion. 2. A second and much larger group which includes all the paralyzes due to nerve lesions, both the ordinary paralysis and those which assume the form of pseudo-tabes or of ascending paralysis. The lesion is always found in the centrifugal or centripetal (motor or sensory) peripheric "neurones." 3. A third group includes the paralyzes due to lesions of the medullary substance, or of the gray matter (as in certain cases of persistent muscular atrophy), or of the white matter (as in cases resembling locomotor ataxia or sclerosis *en plaques*). These lesions have been produced experimentally by Crocq, Jr., Hallier, and Enriquez. 4. A fourth group of paralyzes of central cerebral origin, usually hemiplegic, due to an embolus from a cardiac or vascular lesion. The diphtheritic toxin may also have a direct action upon the cerebral "neurones," as C. Ceni has observed experimentally, but no case has as yet been observed in man which was clearly due to diphtheritic encephalitis. Cases are seldom absolutely typical, the lesions usually being combined. Intubation of the larynx is discussed by P. D. Hughes.²⁰ In an article entitled "Walking Cases of Diphtheria," E. B. Gleason²¹ cites some cases illustrating how a mild nasal and pharyngeal diphtheria might remain undiscovered. T. H. Kellock²² has an article on intubation *versus* tracheotomy in diphtheria. He believes that since the introduction of antitoxin in the treatment of diphtheria the membrane melts away so rapidly that the objections to the use of intubation have been overcome. Francis Riley²² reports a case of diphtheria, complicated with broncho-pneumonia and cutaneous emphysema, treated with antitoxin and in which recovery took place. Sydney Martin¹ gives an address on the serum treatment of diphtheria. He concludes that (1) we should never give less than four thousand units; (2) we should make only one injection and should not go on giving small doses, though in rare cases a second dose may be administered; (3) we should give the remedy in every case and not wait until it gets severe; (4) we should give it as early as possible. The production of potent diphtheritic antitoxins is discussed by G. E. Cartwright Wood.²³ J. Ronalson Russell²⁴ reports seventeen cases of diphtheria without a death, of which fifteen were treated with antitoxin. E. W. Goodall²⁵ gives a report of three cases of diphtheria occurring in patients, the subjects of nephritis, treated with antitoxin. Edward Anderson²⁶ con-

tributes an article on the treatment of laryngeal diphtheria. Dowling Benjamin¹⁰ presents an exhaustive article reviewing the statistics of the antitoxin treatment, which he believes do not entirely prove the efficacy of the new method of treatment. He thinks we will have to wait until further experience settles the question fairly and conclusively. The technique of intubation of the larynx in children is treated by Thomas J. Hillis,²⁷ with some remarks on the time for operation and after-treatment. A. B. Eadie and T. F. McMahon²⁸ report forty cases of diphtheria treated with antitoxin. F. Reid Mackay²⁹ presents some short notes on the value of bacteriological examination in diphtheria. An article²⁹ takes up the question as to whether membranous croup is always due to the microbe of diphtheria. The author will continue to believe that croup and diphtheria are distinct and separate diseases until bacteriology has finally settled the point of dispute. A. Jefferis Turner³⁰ has an article on the antitoxin treatment of diphtheria. J. T. Bokenham³¹ presents an article on antidiphtheritic serum and its preparation.

Gastro-intestinal Septicemia, Acute.—J. Comby³² says that this disease is not uncommon in infants, but that it is somewhat rare in children a few years old. It does, however, occur, and he has himself seen a number of well-authenticated cases. The predisposing causes are a defective condition of the digestive tract and rachitis. Sex has no influence, nor has season. The disease does not appear to be contagious, and is in reality an acute auto-intoxication. The infective agent may possibly be the bacterium coli communis which has become virulent in its action. The symptoms are at first those simply of indigestion—colic, vomiting, and diarrhea. Fever and even delirium follow, the gastric symptoms continue and become more severe, no food is tolerated, and the stools are diarrheal and horribly fetid. Urine is scanty and may be suppressed. In thirty-six to forty-eight hours the child may be in a hopeless condition and the prognosis is very grave. The diagnosis is difficult: simple indigestion is thought of at first, but the symptoms soon become too severe to allow of that diagnosis; poisoning is suggested, but is rarely substantiated; Asiatic cholera is closely simulated, with the exception of the rice-water discharges; typhoid fever is more insidious in its onset and is usually marked by headache, insomnia, and constipation rather than by vomiting and diarrhea; tuberculous meningitis begins with cephalalgia, vomiting, and constipation; intestinal tuberculosis occurs in children who have long been in an invalid condition; grippe may in every particular simulate the disease under consideration, and can only be excluded by the absence of an epidemic; in pneumonia the vomiting, which often occurs at the onset, ceases after the first day and is not followed by diarrhea. By a process of exclusion, therefore, we are enabled to make our diagnosis, and should then institute a prompt and vigorous treatment. The stomach must be given absolute rest, but thirst may be relieved by pure or slightly mineralized water, to be taken in small amount and

with the addition of pieces of ice. Should the vomiting not cease the stomach must be washed out with a borated solution of Vichy water, to temporarily disinfect it and remove the products of fermentation which have accumulated in it. Intestinal irrigation with boiled water must be done several times a day, to be followed by a nutritive enema of

Dry peptone.....	3 1½ to 2½
Yolk of egg	1 or 2
Tepid milk	¾ ij.
Sydenham's laudanum.....	gtt. ij.

Subcutaneous injections of artificial serum may also be given to restore water to the organism and to stimulate the nervous system. Two to ten ounces of a 10 : 1000 sodium chloride solution at 100.5° F. may be injected. If collapse occur, injections of caffeine and ether should be given. The patient must be kept warm with hot-water bottles and be stimulated by friction with turpentine liniment. The chief thing is to act promptly.

Glandular Fever, An Epidemic of.—J. Park West⁶ contributes an interesting article on this subject. The duration of the disease varied from nine to twenty-seven days, but the period of active symptoms, including fever, lasted from four to seven days. Only one death occurred, and that in a child convalescing from scarlet fever. There were no sequelæ or second attacks. The tongue was moist, with a whitish coating, except in the severe cases when it was brownish and dry. The breath was tainted. There was anorexia with occasional nausea, but no vomiting. Constipation existed in the majority of cases, but diarrhea occurred in almost all the mild and short attacks. The beginning of convalescence in the severe cases was marked by a discharge from the bowels of thin, greenish feces mixed with mucus. Abdominal pain and tenderness in and below the umbilical region was present in three-fourths of the cases. In eighty-seven cases the liver, and in fifty seven the spleen, was enlarged. In four cases there was pharyngitis, but no difference in the glandular swelling was apparent. A choking feeling was referred by the patients to both sides and above the larynx. The most marked feature in all the cases was an enlargement of the cervical glands, coming on after two or three days of malaise.

Hemorrhagic Diathesis with Cerebral Hemorrhage.—Berggrum⁷ reports a case in a 9-year-old girl which was improved by treatment but not cured.

Hernia, Strangulated.—S. Nelson Irwin²⁷ reports a case in a child 2 months old, with operation and recovery.

Hysterical Spasm of the Diaphragm.—Berdach³⁶ cites a case in a 10-year-old child, brought on by a teacher's threat at school. The child showed signs of rickets. Only one other case is recorded in literature—that of Seeligmüller.

Imperforate Rectum.—J. W. Elliot³⁸ reports a case in which a successful laparotomy and the Kraske operation were successful in an infant 2 days old.

Influenza.—Floyd M. Crandall⁶ presents an article on the occurrence of this disorder in children, with a report of local epidemics. The symptoms noted did not markedly differ from those observed in adults.

Insolation.—Henri A. Lafleur⁶ reports a case in an infant 13 months old.

Intestinal Occlusion, Congenital.—Hecker⁴¹ reports a case in a child 3 days old in which the operation was followed by death.

Intussusception, Acute.—J. Crawford Renton⁴² reports three cases in which abdominal section was followed by recovery.

Laryngitis.—M. Mendel⁴³ reports a case of acute laryngitis that caused the formation of two small inflammatory granulations which were quite persistent and which greatly resembled polypi. Absolute rest of the vocal cords and treatment by a 1:50 nitrate of silver solution caused their gradual disappearance.

Mastoid Disease.—Edward Fridenberg⁴⁴ discusses latent mastoid disease and reports cases. In the types of cases presented, disease of the mastoid, acute or chronic, produces a great destruction within the bone, symptoms not arising until the pathological process approaches or reaches the meninges or semicircular canals on the one hand or the periosteum on the other. And the lesson which they teach is that in any case in which purulent discharge from the middle ear continues, or extensive carious destruction of the contents and walls of the tympanic cavity exists or has existed at any time, latent mastoid disease should be considered as a possibility and guarded against. Adolph Bronner⁴⁵ has an article on the recent modifications in the surgical treatment of diseases of the attic and mastoid process.

Measles.—Henry Koplik⁶ contributes a valuable article on the diagnosis of the invasion of measles from a study of the exanthem as it appears on the buccal mucous membrane. The eruption of the exanthem of measles on the buccal mucous membrane, its spread and decline, forms a sort of cycle which can be verified by any one who will study it. The height of the eruption is reached just as the skin eruption has appeared and is spreading. When the skin eruption is at its efflorescence the eruption on the buccal mucous membrane has begun to decline. If we look in the mouth we see a redness of the fauces, and perhaps a few spots on the soft palate. On the buccal mucous membrane and inside of the lips, however, we invariably see a distinct eruption consisting of small, irregular spots of a bright-red color. In the centre of each of these spots is noted, in strong daylight, a minute bluish-white speck. Such spots are absolutely pathognomonic of beginning measles. They are seen only on the buccal mucous membrane and inside of the lips. They cannot be mistaken for sprue, as they are not as large or as white as sprue spots, nor do they ever coalesce. In scarlet fever the buccal mucous membrane retains

its normal pale hue. In simple aphthous stomatitis red spots appear on the buccal mucous membrane, but they are not as bright-red as the spots of measles and they do not show the bluish-white specks in the centre. There is one point of great diagnostic value in differentiating Rôtheln from measles: in Rôtheln the mucous membrane lining the cheeks has its normal pale-pink hue. Beginning grippe, with its picture of suffused conjunctivæ, reddened fauces, fever and coryza, resembles closely the invasion of measles in many cases. A distinct difference is found in the absence of the characteristic eruption of measles from the buccal mucous membrane, the part retaining the pale and normal hue at the outset of grippe. C. J. Rix⁴⁵ discusses the effects of warm baths in the treatment of measles. They bring out the rash, the breathing becomes easier, and the patient becomes less restless. He gives them twice daily until the rash is fully developed and the temperature has become normal. The author believes that the course of the disease is shortened and the tendency to complications lessened. E. B. Macdonald Atkins⁴⁶ reports a case of measles complicated with broncho-pneumonia followed by scarlet fever and diphtheria.

Myxedema.—Hock⁴⁷ reports a case treated with thyroidin with improvement; also a case of lunacy treated with same agent and improved.

Myxedematous Cretinism.—Wendel⁴⁸ reports a case in a 12-year-old child in which the thyroid was entirely absent. Treatment with the thyroid extract was productive of no permanent good.

Otitis.—Chambellan⁴⁹ reports two cases in the same family in which polypi were found in the external auditory meatus during the course of acute external otitis. The situation is unusual, the common seat for polypi being the middle ear. The fact that they developed rapidly during the course of an acute otitis is also exceptional, for as a rule they occur some time after suppuration. The family predisposition to polypi of the ear is likewise worthy of note.

Paralyses of the Brachial Plexus of Obstetrical Origin.—E. Weil⁵ thus concludes an article upon this subject: 1. Paralysis of the brachial plexus is a rare complication of difficult labor which usually follows obstetrical manœuvres. 2. It occurs more often after breech than after head presentations. 3. Clinically, every form of paralysis of the roots of a plexus found in the adult may be observed, and may be slight or severe. Slight paralyses are more common after head presentation. 4. Lesions of the bones, articulations, muscles of the arm or neck, may accompany the nerve lesion, and the nerves of the neck, cervical, pneumogastric, or spinal plexus may be involved. 5. The prognosis is serious, as the lesions may become chronic. 6. Their pathological physiology is often complicated. The severe forms of paralysis appear to be due to strong traction of the arms, due to stretching and tearing of the nerves. Slight paralyses are perhaps due to compression of the nerves.

Pertussis.—S. J. Radcliffe⁵⁰ has an article treating of pertussis as a neurosis. It is not proven, the author states, that pertussis is of bacterial origin, nor has any treatment which has as its object the cure of a disease of a purely bacterial nature been of any avail. On the other hand, the only remedies beneficially affecting the disease are those that have been considered as constitutional—those that have been directed to the nervous element upon which the disease is believed to depend. Seventy-five per cent of the subjects of this trouble are neurotics by heredity, and some become so occasionally from acquired habit. They exhibit the nervous characteristics and conditions of typical neurotics in every phase of life: they are easily alarmed, depressed, or impressed for good or ill; they are easily moved to tears or excited to anger; their sleep is almost always disturbed; they suffer from enuresis, or impaired or arrested digestion from shock or fright; they are easily excited or prone to convulsions. Another important feature of the disease is the possibility that it is sometimes associated with or may lead to glycosuria. Glycosuric phenomena in pertussis are usually slight, and as a general thing play a very unimportant part in the complications. It may, however, be worthy of emphasis that, if glycosuria is eminently and without doubt of nervous origin, no discussion of pertussis with this accompanying symptom can be complete without including the nervous element at least as one of its factors. Bernhardt⁵¹ contributes an article on spinal-cord disease in pertussis. Only two cases are recorded in the literature of the subject, to which the author adds a third. The condition may be due to a hemorrhage causing compression, or else to an infectious process (myelitis), as the pertussis itself is an infectious disease. The prognosis may be good. The disorder is analogous to encephalitis secondary to influenza. Furbringer⁵¹ reports a case of hemorrhagic myelitis in pertussis in a child 18 months old. The symptoms came on when the pertussis was declining. The autopsy showed hemorrhagic encephalitis and myelitis, undoubtedly of infectious origin. Arthur G. Phear⁵² presents an article on the subject.

Pharyngeal Cough in Children.—René Millon⁵³ believes that nearly one-fourth of the children who cough are affected with a pharyngeal rather than a bronchial cough. This is characterized by repeated attacks of coughing, which at night, when they are most frequent, may last as long as ten or fifteen minutes; in the daytime they usually follow rapid action, or fits of anger or crying; at night they are especially apt to occur at bedtime, at midnight, and upon awakening. A glairy mucus is produced in the throat, which may be removed by the fingers in young children and which older children may cough up, but which is usually swallowed. It is long, viscous, sometimes thickened; it may be streaked with blood if the attacks of coughing are long and violent. Nausea and vomiting are sometimes caused by these attacks. Medication, other than topical, has little effect. The cough does not, as a rule, affect

the general health. This condition is not accompanied by any tracheo-bronchial symptoms perceptible to the most careful auscultation. In the throat will be found the signs of chronic pharyngitis. The amygdal tonsils may be enlarged. Pharyngeal cough is easily diagnosed when it exists alone, but when it is combined with bronchitis it is difficult to decide to which affection the cough is due. When pharyngitis is combined with pertussis we should give both local and general treatment. Resorcin, five per cent, may be applied to the pharynx. At the termination of the whooping cough the pharyngitis should receive especial attention, as it may prolong the cough indefinitely. Applications of iodized glycerin are excellent. In the treatment of uncomplicated pharyngeal cough, resorcin, in a fifty to a hundred per cent solution, may be applied, but equal parts of glycerin and iodine are better. These applications should be made twice, or at most three times, a week. Older children may also gargle a solution of chlorate of potash morning and evening. The cough will disappear more promptly than the lesions.

REFERENCES.

- ¹ Lancet, Oct. 17th. ² N. Y. Med. Jour., Nov. 7th. ³ Rev. d'Hygiène et de Police sanitaire, Nov. 20th. ⁴ Rev. de Mal. de l'Enf., Oct. ⁵ Clin. Jour., Dec. 2d. ⁶ Arch. Ped., Dec. ⁷ Arch. für Kinderhk., vol. xxi., No. 2. ⁸ Bost. Med. and Surg. Jour., Dec. 3d. ⁹ Med. Rev., Nov. 7th. ¹⁰ Jour. Am. Med. Assoc., Oct. 17. ¹¹ Amer. Med.-Surg. Bull., Nov. 14th. ¹² Jour. Am. Med. Assoc., Dec. 5th. ¹³ Jour. de Clin. et de Thér. inf., Nov. 19th. ¹⁴ Lancet, Nov. 14th. ¹⁵ Med. Rev., Nov. 21st. ¹⁶ Med. Rec., Dec. 5th. ¹⁷ Münch. Med. Woch., vol. xliii., No. 47. ¹⁸ Wien. Med. Woch., vol. ix., No. 48. ¹⁹ Jour. de Clin. et de Thér. inf., Oct. 29th. ²⁰ Kansas Med. Jour., Nov. 7th. ²¹ Atlantic Med. Weekly, Aug. 29th. ²² Lancet, Oct. 3d. ²³ Lancet, Oct. 24th. ²⁴ Lancet, Nov. 7th. ²⁵ Lancet, Nov. 21st. ²⁶ Maryland Med. Jour., Nov. 28th. ²⁷ Med. Rec., Nov. 28th. ²⁸ Canadian Pract., Nov. ²⁹ Edin. Med. Jour., Dec. ³⁰ Intercolonial Med. Jour. of Australia, Oct. ³¹ Brit. Med. Jour., Oct. 3d. ³² Kansas Med. Jour., Oct. 3d. ³³ Clin. Jour., Nov. 18th, 25th, Dec. 2d. ³⁴ Atlantic Med. Weekly, Oct. 24th. ³⁵ Wien. Klin. Rundschau, vol. x., No. 47. ³⁶ Jour. Am. Med. Assoc., Oct. 31st. ³⁷ La Med. Mod., Nov. 11th. ³⁸ Med. News, Oct. 17th. ³⁹ Am. Med.-Surg. Bull., Dec. 5th. ⁴⁰ Charlotte Med. Jour., Nov. ⁴¹ St. Petersburg Med. Woch., vol. xxi., No. 45. ⁴² Brit. Med. Jour., Oct. 17th. ⁴³ Jour. de Clin. et de Thér. inf., Nov. 12th. ⁴⁴ Med. News, Oct. 24th. ⁴⁵ Brit. Med. Jour., Nov. 7th. ⁴⁶ Lancet, Nov. 28th. ⁴⁷ Prag. Med. Woch., vol. xxi., No. 44. ⁴⁸ Berlin. Med. Woch., vol. xxxiii., No. 47. ⁴⁹ Jour. de Clin. et de Thér. inf., Nov. 5th. ⁵⁰ Jour. Am. Med. Assoc., Oct. 24th. ⁵¹ Allg. Med. Central-Zeit., vol. lxx., No. 92. ⁵² Clin. Jour., Nov. 18th. ⁵³ Rev. Obst. et Gyn., Nov.

THE AMERICAN JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. XXXV. FEBRUARY, 1897.

No. 2.

ORIGINAL COMMUNICATIONS.

CONGENITAL PROLAPSUS UTERI,
WITH TWO ILLUSTRATIVE CASES.

BY

J. W. BALLANTYNE, M.D., F.R.C.P.E.,

AND

JOHN THOMSON, M.D., F.R.C.P.E.,

Edinburgh.

(With two illustrations.)

CASES of true congenital prolapse of the uterus are so rare that no apology is required for putting upon record what are probably the seventh and eighth known examples of the anomaly. Our attention was drawn to the first case by Dr. Alexander Macdonald, of Edinburgh; while for the details of the second and for the opportunity of inspecting the specimen we are indebted to Dr. C. McVicar, of Dundee, in whose practice it occurred. To these gentlemen our thanks are due for their courtesy in enabling us to investigate two instances of so rare an anomaly.

CASE I. *Clinical Notes*.—The patient, a girl, was 6 days old when first seen by us. She was the youngest of five children, the others being strong and normal. During pregnancy

the mother had suffered from no illness or accident. The child was born at full term on December 15th, 1896, and, with the exception of the spina bifida and double clubfoot, appeared healthy. The urine was passed freely and the bowels were regular, although the digestion seemed very feeble. On December 17th the spina bifida burst, and on the next day prolapse of the uterus was seen for the first time and seemed to cause continual pain and straining. After it appeared it remained constantly down. On December 21st we saw the child for the first time, when we found the following noteworthy conditions:

1. In the lumbar region was a large spina bifida which had burst; its base measured about $1\frac{1}{2}$ inches in diameter.

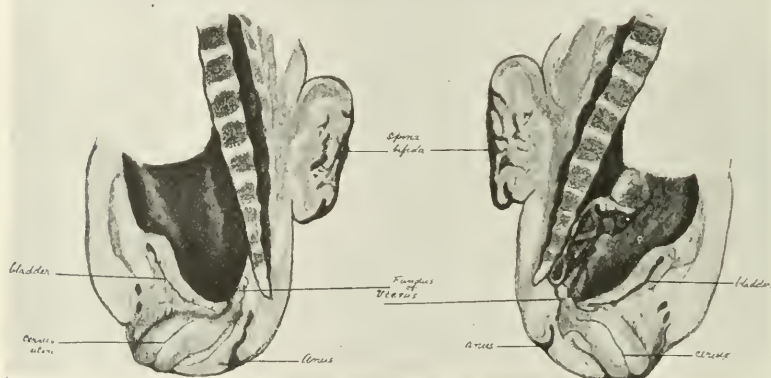


FIG. 1.—Vertical mesial section of pelvis of infant with congenital prolapse uteri. Right and left sides shown.

2. Protruding for about $\frac{3}{4}$ inch from the vulva was a red mass closely resembling prolapsed bowel. This, on closer examination, was found to be the hypertrophied cervix uteri and the adjacent part of the vaginal wall. A quantity of clear, gelatinous secretion exuded from the os uteri. A sound was passed within the os and entered easily for $1\frac{3}{4}$ inches; it could also be passed into the vagina at the side of the prolapse for about one inch all round. The prolapse went back readily on slight pressure, but came down again very soon unless the surrounding parts were held together.

3. The anus projected unusually and its orifice was somewhat patent; a finger passed within it was not grasped at all.

4. There was extreme talipes varus on both sides. The patella was absent on the right side, but present on the left.

No abnormality of the head or of the thoracic and abdominal organs was found, but the infant was evidently extremely weak. The prolapse was returned and the buttocks kept in close apposition by means of plaster and a pad of cotton wool. The child seemed in less pain after this, but she got gradually weaker and died the next afternoon at 5:30.

Morbid Anatomy.—At the post-mortem examination, which took place next day (December 23d) at 1 o'clock, the heart,

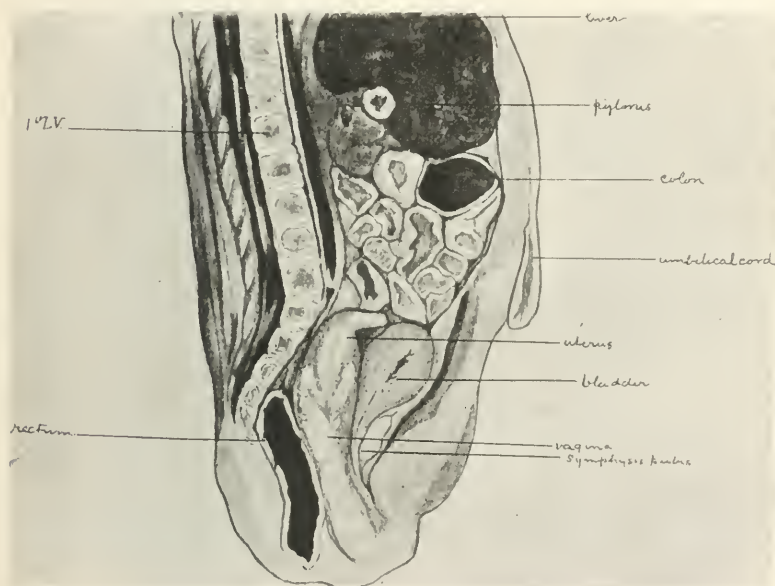


FIG. 2.—Vertical mesial section of infant's pelvis, showing normal relations of viscera. Left side shown.

lungs, liver, spleen, kidneys, stomach, and bowels were found to be normal. The pelvis and the lower third of the spine were removed for further examination. The lower end of the trunk of the infant was placed in freezing mixture, the prolapse having been previously reproduced. A vertical mesial section was then made in the usual way, the parts were traced upon gelatin, and water-color drawings, photographs of which are seen in Fig. 1, were executed. The investigation was carried out in the College of Physicians' Laboratory, Edinburgh. For comparison the appearances in a section of a normal pelvis of a new-born infant are represented in Fig. 2.

A reference to the two illustrations makes it at once evident that the uterus is really prolapsed, for in the one instance the fundus uteri lies at the level of the coccyx (in the plane of the pelvic *outlet*), whilst in the other it is situated 0.5 centimetre above the pelvic *brim* (its normal height at this time of life). The cervix uteri (Fig. 1) distends the vulva and protrudes slightly from it, but the degree of protrusion is much less than during life; normally (Fig. 2) the cervix is at the level of the third or fourth sacral vertebra. In the prolapse specimen the cervix and lower part of the corpus uteri have an upward and backward direction—that, in fact, of the normal vaginal axis—but the upper part of the body lies nearly vertically in the pelvis. The uterine axis contrasts markedly with the normal as shown in Fig. 2. The bladder, whose cavity has a Y-shape, is situated lower in the pelvis than is usual, and there is also a certain degree of prolapse of the vaginal walls. The rest of the pelvic cavity is occupied by the rectum and intestinal coils (not represented in the illustration). The sacrum shows no indication of a promontory, and the lower part of the spinal column is perfectly straight except for a slight bending *backward* of the tip of the coccyx. This contrasts markedly with the normal disposition of parts represented in Fig. 2, in which there is a lumbo-sacral and a sacro-coccygeal curve and the tip of the coccyx is turned *forward*. The empty condition of the rectum in the prolapse case is noteworthy and contrasts with its distended state in the normal infant. The defect in the posterior wall of the spinal canal affects the last lumbar and the first two or three sacral vertebræ, and the cauda equina is seen spread out over the inner surface of the spina bifida sac. A distinct perineal body of a triangular shape exists, the vaginal rugæ are well marked, and the distended vulvar orifice shows an unruptured annular hymen.

Dissection of the pelvic contents revealed the ovaries and Fallopian tubes lying slightly above the level of the fundus uteri at the sides of the pelvic cavity. The broad and round ligaments were greatly stretched and thinned. The connective tissue in the pelvis seemed to be smaller in amount than normal, but the infant herself was not at all plump. The urethra was patent.

The following measurements were made. With regard to the pelvic diameters, it may be convenient to place them alongside of the averages in normal new-born infants.¹

¹ Vide Ballantyne's "Introduction to the Diseases of Infancy," p. 96, Edinburgh, 1891.

Diameters.	Normal.	Prolapse case.
Interspinous	5.5 centimetres.	4.6 centimetres.
Intercristal	6.0 ..	5.0 ..
Conjugata superior	3.3 ..	4.0 ..
Conjugata inferior	2.5 ..	3.5 ..
Transverse at brim	2.3 ..	3.0 ..
Antero-posterior at outlet	1.8 ..	3.5 ..

This table proves conclusively that in the infant with prolapsus uteri the diameters of the false pelvis were below the normal, whilst those of the true pelvis, both at the brim and outlet, were distinctly above the average.

The total length of the uterus was 3.2 centimetres, of which 2 centimetres belonged to the cervix and 1.2 centimetres to the body. The transverse diameter of the uterine fundus was 1.5 centimetres and the antero-posterior only 0.5 centimetre. The cervix had an antero-posterior measurement of 1.2 centimetres and a transverse of 1.0 centimetre. Save for a certain but not a great degree of cervical enlargement, these diameters do not differ greatly from those in normal infants.¹ The distance between the anal and vulvar apertures was 1.0 centimetre.

CASE II. *Clinical Notes.*—The patient, a full-time female infant, was born on July 17th, 1896. Her mother, a Ipara 24 years of age, had been married for nine years to a man now 43 years old. The child was born with the lower limbs on the abdomen, the knees extended, and the soles of the feet apposed. In the lumbo-sacral region was a collapsed spina bifida, which had probably burst during birth, and from which clear fluid was oozing. It was sessile, and its base, almost circular, had a circumference of five inches. Its wall was composed of tough membrane, and around the base the skin, of a bright-red color, faded into the membrane. In the middle line of the cyst was a vertical groove, beneath which could be felt a cord-like body, pressure upon which always made the child cry. No patella could be felt on either side, and the extended legs were now forcibly flexed. Double talipes varus existed, and there was a deep groove at the junction of the first metatarsal and the internal cuneiform bones. No hydrocephalus, no cleft palate.

On the next day (July 18th) Dr. McVicar, in whose practice the case occurred, first noticed a red, rounded mass of uniform thickness protruding for fully half an inch from the vagina.

¹ Ballantyne, op. cit., p. 105.

This, which was not present at birth, was the prolapsed uterus. The vaginal portion was rounded and the os externum was transverse with furrows at each end. A probe passed up between the vaginal walls and the protruding cervix uteri. The prolapse could be easily returned, but came down again when the child cried. The vagina was roomy and its entrance admitted the middle finger. There was a circular hymen. There were no gluteal folds; the buttocks formed a pyramid with the anus at the apex. There was slight eversion of the rectal mucosa; the skin was wrinkled round the anus, into which the little finger could be easily passed and was not grasped. Meconium and urine were passed at intervals. No movements were noticed now (or afterward) at any of the joints from the knees downward, and pinching the muscles of the leg or foot caused neither movement nor sign of pain. Tickling the skin of the front of the leg caused slight flexion of the thigh. A pad of cotton wool was placed over the spina bifida, which was filling again, and the vagina was plugged, the plug being kept in position by a napkin.

From this date till July 23d the child lived on; but the uterine prolapse was constantly coming down, and the cervix was much congested, whilst the spina bifida sac showed a slough. On the 23d the infant cried constantly, became cyanosed at intervals, and on the morning of the 24th was found dead in bed.

Morbid Anatomy.—At the post-mortem examination (July 24th) the body was found of medium size and weight. The lips, ears, and finger tips were markedly cyanosed. The pelvis and lumbar vertebræ were removed for special examination.

The total length of the uterus was 2 inches (5 centimetres), body and cervix each measuring 1 inch. The vaginal portion was rounded, with a transverse opening. A probe passed in $1\frac{7}{8}$ inches. The distance of the fundus uteri above the bottom of the pouch of Douglas was $1\frac{1}{2}$ inches, above that of the uterovesical pouch $\frac{1}{2}$ inch. The length of the vagina was 1 inch. The anterior lip of the cervix was club-shaped; it was thicker and longer than the posterior, its thickness being $\frac{5}{16}$ inch, that of the posterior $\frac{1}{4}$ inch. A triangular perineal body was present, the distance from the anus to the vulva being $\frac{1}{4}$ inch.

The pelvic diameters were: conjugate at brim, 1 inch; in the cavity, $1\frac{1}{4}$ inches; at the outlet, $1\frac{1}{8}$ inches. The transverse and the obliques at the brim were $\frac{7}{8}$ inch.

The ovaries and tubes were normal. The uterine ligaments

were present, but allowed the descent of the organ, the body of which lay nearly vertically in the pelvic cavity. The uterine artery was well marked on both sides.

The spina bifida was a meningo-myelocoele extending from the junction of the fourth and fifth lumbar vertebræ to that of the third and fourth sacral. The tumor really formed the end of the spinal canal; the cauda equina, covered with pia mater, ended at about the centre of the posterior wall, and from it nerves radiated to the intervertebral foramina. The kidneys were large, each measuring 3 inches by $1\frac{3}{4}$ inches: in their interior were numerous pinhead-sized cysts. Spleen, liver, and heart normal. The fundus of the bladder lay above that of the uterus. Urethra patent.

Such were the records of the two cases of congenital prolapsus uteri which came under our observation, and before we proceed to discuss the mode of origin of the anomaly it may be well to refer to the instances recorded by other observers.

PREVIOUSLY RECORDED CASES.—It would seem that, including the two instances above described, eight cases of true congenital prolapsus uteri have been put on record. The full references to these may here be given:

1. SCHULTZ: "Prolapsus uteri congenitus." *Verhandl. d. Ver. pfälz. Aerzte* 1556, Kaiserslautern, p. 48, 1857.

2. QVSLING (N.): "Prolapsus uteri completa hos et nyfodt Barn." *Norsk Mag. f. Laegevidensk.*, 4 R., iv., p. 265, Christiania, 1889. Also, "Prolapsus uteri completa bei einem neugeborenen Kinde," *Arch. f. Kinderh.*, xiii., p. 81, Stuttgart, 1890-91.

3. SCHAEFFER (O.): "Bildungs Anomalien weiblicher Geschlechtsorgane aus dem fötalen Lebensalter mit besonderer Berücksichtigung der Entwicklung des Hymen," *Arch. f. Gynäk.*, xxxvii., p. 244, 1890. Also in F von Winckel's "Die Königliche Universitäts-Frauenklinik in München in den Jahren 1884-90," p. 537, 1892.

4. HEIL (K.): "Ein Fall von angeborenem Prolapsus uteri et vaginae incompletus," *Arch. f. Gynäk.*, xlviii., p. 155, 1894.

5. REMY (S.): "Spina bifida—Ulcerations peri-anales—Prolapsus complet des organes génitaux internes," *Arch. de Tocol.*, xxii., p. 904, 1895.

6. KRAUSE: Case reported and figured by F. L. NEUGEBAUER in his "Kilka słow o mezkiem owłosieniu u Kobiet," *Gaz. lekarska*, xvi., p. 1223, Warszawa, 1896.

7. BALLANTYNE and THOMSON: Vide supra.

8. McVICAR (C.): Vide supra.

These cases will now be referred to by the numbers attached to them, and it may be stated that all the references have been consulted in the original. With regard to Schultz's paper, we were unable to see the journal in which it appeared, but

through the kindness of Deputy Surgeon-General Huntington, of the Washington Library, we were favored with a typewritten copy of it. To Dr. Neugebauer, of Warsaw, we are indebted for a letter containing fuller details of Krause's case than those given in the *Gazeta lekarska*. Schaeffer (3) refers to a case published by Munro¹ in 1735; but had he been able to consult the original he would have seen that the prolapsus uteri was not congenital in the true sense, for the patient was 3 years old before it occurred. Nevertheless Munro's case is of interest, for it bridges across the gap between truly congenital prolapse and that met with in nulliparous women. The patient described by Villaume² as suffering from complete congenital inversion of the uterus has been supposed by some writers to have been really the subject of prolapsus; but the details of the case, although they do not altogether clear up the nature of the anomaly, are sufficient to prove that it was not true congenital uterine prolapse.

GENERAL CONSIDERATIONS. *Definition.*—Congenital uterine prolapse may be defined as an evident and real downward displacement of the uterus occurring at or immediately after birth, and associated frequently, if not constantly, with spina bifida of the lumbo-sacral region. It must, therefore, be differentiated from so-called congenital hypertrophic elongation of the cervix—an anomaly which appears at or near the time of puberty; at the same time a certain degree of cervical enlargement may be associated with true congenital prolapsus.

Clinical History.—In the reported cases, notes concerning the history of the pregnancy ending in the birth of an infant with congenital uterine prolapse were not always forthcoming; no information whatever is given in No. 3, although Schaeffer states that Winkel is to describe the case in full later, and in No. 6 scarcely any facts are given.

The mother of the infant was a Ipara in Nos. 5 and 8, a IIpara in No. 4, a IIIpara in No. 1, a IVpara in No. 2, and a Vpara in No. 7. In No. 5 she was young (17 years) and very nervous; in No. 1 she was delicate and had suffered in a previous pregnancy from weak pelvic ligaments; and in No. 8 she had been married nine years before conception occurred. The gestation ending in the birth of an infant with prolapsus was

¹ Munro (A.): "An Account of a Procidencia Uteri." *Med. Essays and Obst. Soc. Edinb.*, iii., p. 303, 1735.

² Villaume: "Observation d'un vice de conformation des organes sexuels de la femme," *Bull. Acad. de Méd.*, viii., p. 1256, Paris, 1842-43.

probably generally uneventful; but in No. 2 there was a history of a maternal impression (fright) between the fourth and fifth months and again at the eighth month, and weakness of the fetal movements was noted. In Nos. 2, 4, 5, 7, and 8 the pregnancy went to the full term, but in Nos. 1, 3, and 6 information on this point is not forthcoming. The head presented and the infant was born without interference in Nos. 4 and 7, and probably also in Nos. 5, 6, and 8; but in No. 2 there was a breech presentation, not, however, requiring instrumental aid. In the multiparous mothers the previous children had all been normal, and in No. 2 it was specially noted that the three older girls were all well formed. In no case was there a history of malformations on the maternal or paternal side; but in No. 2 both the mother and her child had a nevus on the neck.

Symptomatology.—In every case, with the possible exception of No. 3, the infant was born alive, and in every case death resulted not long thereafter—in seven days in Nos. 7 and 8, in ten days in No. 5, in twelve days in No. 4, in about a fortnight in No. 6, in little more than six weeks in No. 2, and in three or four months in No. 1. In no case, save possibly in Nos. 3 and 6, was the prolapse present at the moment of birth; in No. 8 it appeared next day, in No. 4 in thirty-two hours, in No. 7 in three days, in No. 5 in six days, in No. 2 in seven days, and in No. 1 in ten weeks.

In No. 2 the first appearance of the prolapsus uteri was preceded by diarrhea, crying, and peculiar intense straining; in No. 5 the infant cried much the night before the prolapse was noticed; and in Nos. 7 and 8 the uterine displacement occurred after the rupture of the sac of the concomitant spina bifida. In all the cases the prolapse was easily replaced, but generally came down again with the slightest straining. Various means—*e.g.*, vaginal plugs—were employed to insure retention, not always with success; but since in no case did the infant survive, it is impossible to say what might have been the ultimate result of treatment. In no instance does the prolapse seem to have been the cause of death; probably the accompanying condition of spina bifida was a more potent factor. Generally a gradual weakening of the infant's powers occurred, with or without diarrhea and convulsive attacks, and the fatal issue was not long delayed. In some cases the infants were puny and weakly at birth; but in No. 2 the child was strong and well developed, and it was in this instance that death did not occur for five weeks.

Physical Signs.—The leading physical signs of this anomaly were the uterine prolapse itself, associated with some ectropion of the rectal mucosa and inversion of the urethra, and with spina bifida and deformed lower limbs.

The uterine prolapse was sometimes complete (Nos. 2, 5, and 6), the whole organ being external and the vagina showing inversion; but in Nos. 1, 3, 4, 7, and 8 the displacement was incomplete. The swollen and livid condition of the protruded cervix was specially referred to, and the os externum uteri was described as a transverse slit from which viscid mucus exuded. There could scarcely be any doubt as to the diagnosis, but if such existed the use of the sound enabled the recognition of the anomaly to be complete. In No. 1 the replacement of the uterus was followed by the escape of urine from the bladder, but in the other instances micturition was not apparently impeded by the prolapse.

In Nos. 2, 4, 6, 7, and 8 there was some degree of eversion of the rectal mucosa, and in No. 5 there was a stellate ulceration, such as is produced by tearing, at the level of the anal orifice. In No. 6 there was some displacement downward of the urethra along with the vaginal inversion: but this does not seem to have been specially noticeable in the other cases.

It is a very striking fact that, in all the instances save No. 1, it is distinctly stated that there existed a spina bifida of the lumbar or of the sacral region, or of both; and even in the exception (No. 1) there is nothing in the very incomplete history to exclude the possibility of its existence there also. But if we leave out of account Schultz's case (No. 1) there remain seven cases in which uterine prolapse occurred within a week of birth, and in all of them there was concomitant spina bifida of the lumbar or sacral region. This constant association shows that *congenital prolapsus uteri is to be regarded as an occasional symptom of lumbo-sacral spina bifida*.

It is also noteworthy that in Nos. 2, 4, 7, and 8 there was talipes, bilateral equino-varus in No. 2, bilateral varus in Nos. 7 and 8, and left-sided varus and right-sided planus in No. 4. In the other cases (Nos. 1, 3, 5, and 6) no mention is made of the state of the feet.

In Krause's case (No. 6) there was an additional anomaly, for there existed general hypertrichosis along with the presence of two tufts of black hair in the middle line of the back below the level of the spina bifida, and a heterochronous excessive development of the scalp hair.

In one or two of the cases allusion was made to defective muscular action. In No. 6 paresis of the muscles of the perineum and vulva is spoken of; and in No. 4 the nervous phenomena in the lower limbs were fully investigated, with the result that sensibility was seen to be bilaterally disturbed, the patellar reflex was absent on both sides, ankle clonus was absent on the left side but increased on the right, and the electrical reactions of the leg muscles were defective on the left side. In No. 7, also, pinching or tickling the lower limbs caused either no movement or only a slight flexion of the thighs.

Pathology.—No autopsy was performed in No. 1, but in all the remaining cases some anatomical details were given. Some of these details have been already referred to under the physical signs, but others were only observed during the post-mortem examination.

With regard to the region of the head, in one instance (No. 4) the cranium was opened and a moderate degree of hydrocephalus was found: the sutures and fontanelles were wide, the ventricles were distended, and the choroid plexuses were infiltrated with pus. In No. 2, also, there were external signs of hydrocephalus—large head, wide sutures, but no softness of the cranial bones. The thoracic viscera were fairly normal, but in No. 2 there were signs of bronchitis, and in No. 4 the ductus Botalli was still open on the twelfth day of life. With regard to the abdominal organs, it may be gathered that they were generally healthy, although in No. 8 the kidneys were enlarged and showed on section numerous pinhead-sized cysts.

In the seven cases of which we possess post-mortem notes there was spina bifida. In Nos. 3, 5, and 6 it was situated in the lumbar region, and in the last instance it was a myelomeningocele whose contents did not communicate with the spinal canal, and below it was a cutaneous depression over the sacrum, with a bluish cicatrix from which a tuft of hair sprang. In No. 2 there was a hydro-meningocele with thick walls; it measured 5 centimetres in length by 7 centimetres in breadth and 3 centimetres in height, and it was due to a defect in the arches of the fifth lumbar and first and second sacral vertebræ. In Nos. 7 and 8 the characters of the spinal malformation were similar, but in No. 4 its sac was larger and it was situated at a slightly higher level, affecting, as it did, the last dorsal and all the lumbar vertebræ, and a complete spinal cord was found in a depression below it. In these cases it was a myelo-meningocele.

The upper limbs seem to have been normal in all the recorded cases, but the lower extremities were contorted in Nos. 2, 4, 7, and 8. In No. 4 there was imperfect movement at the hip and knee joints, and in No. 8 the extended lower limbs had to be forcibly flexed. In both Nos. 7 and 8 there was absence of the patella—bilateral in No. 8, unilateral in No. 7.

It was in the pelvis, however, that the most interesting pathological changes were found. In our own case (7) and in No. 4 the pelvic diameters were greater than normal, but this does not seem to have been the case in No. 8, and in the remaining records the measurements were not given. The uterus, instead of lying at the level of the pelvic inlet in the axis of the brim, was situated at the pelvic outlet in the axis of the vaginal canal; the long diameter of the uterus, therefore, was directed downward and forward instead of downward and backward—retroversion in place of anteversion. With regard to the size of the uterus, if it be conceded that the normal length is about 3 centimetres, then in two (4 and 8) out of four instances (2, 4, 7, and 8) this measurement was distinctly exceeded; in No. 4 the length was 4 centimetres, and in No. 8 5 centimetres. In no case, however, was the uterine hypertrophy so great as of itself to cause the protrusion of the cervix from the vagina; in other words, there was a real displacement downward, as well as a hyperplasia of the organ. The os uteri was generally described as wide and gaping, but it possesses this character at birth in cases where there is no prolapse at all.¹ The cervix was relatively large when compared with the body of the uterus, but this also can scarcely be regarded as pathological in the new-born infant.

The uterine ligaments (round, broad, and utero-sacral) showed thinning and extension in No. 4, and in this case also a ligamentum recto-uterinum existed. In No. 2 the ligamenta lata and rotunda were lax, and in the two instances related in this paper (7 and 8) they were markedly stretched. In No. 4 reference was made to the small size of the psoas muscles and to the poor development of the pelvic connective tissue, but this is a matter difficult to estimate accurately. The distance from anal to vulvar aperture—*i.e.*, the length of the perineal body—varied from 3 centimetres in No. 2 to 1.6 centimetres in No. 4, 1 centimetre in No. 7, and 5 centimetres in No. 8. In some cases reference was made to the existence of the hymen

¹ Vide Ballantyne's "Introduction to the Diseases of Infancy," p. 105, 1891.

as a distinct ring embracing the prolapsed uterine cervix, and it would appear that the external genitals showed no anomalies.

Pathogenesis.—It is probable that congenital prolapsus uteri, like the same displacement in the adult, has a complex origin. Just as several factors (increased uterine weight and abdominal pressure and diminished pelvic floor resistance) commonly combine to produce uterine prolapse in later life, so in the infant at birth it is reasonable to look for an association of predisposing and exciting causes. It is quite probable, also, that some conditions, such as the enlargement of the pelvic outlet by backward displacement of the coccyx and hyperplasia of the uterus, which might be regarded as causes of the prolapse, may more truly be looked upon as results of it.

From what has been said of the pathology of the cases it is inevitable that we should first think of a nervous factor in the etiology of congenital prolapsus uteri, for in practically all the records there was mention made of the coexisting lumbo-sacral spina bifida, and in some of them there was also evidence of muscular paresis in the lower limbs and pelvis. Heil (4) and Remy (5) both lay great stress upon a nervous mode of origin, and look to the lesions of the spinal cord (from the spina bifida) as the principal cause of the prolapse. The former believes that these produce developmental and nutritive disturbances in the pelvic organs, such as poor development of the connective tissue, laxity of the ligaments, weakness of the muscles, and possibly also hypertrophy of the cervix; the spina bifida, then, is the indirect, and the consequent imperfect formation of the pelvic contents the direct, cause of the prolapsus uteri. Remy's views were similar, but were not so fully stated.

Qvisling (2), on the other hand, emphasizes increased abdominal pressure as the chief cause of the anomaly, and regards laxity of the pelvic ligaments and enlargement of the uterus as results of the displacement. He does not think that the spina bifida stood in any causal relationship to the prolapse at all.

Neugebauer (6) was of opinion that in Krause's case the crying of the child was one factor, and the paretic relaxation of the muscles of the perineum and vulva another cause, in the production of the prolapse.

That the spina bifida does stand in an etiological relationship to congenital prolapsus uteri we think there can be no doubt. The constant association of the two states cannot be passed over, and the fact that all the fully reported cases of prolapse showed this association is most noteworthy. On the other hand, lum-

bar or lumbo-sacral spina bifida is comparatively a common anomaly, whilst congenital uterine prolapse is one of the rarest of occurrences. There must, therefore, be other circumstances which determine when a lumbar spina bifida is to be complicated with or accompanied by a congenital descent of the uterus. These circumstances, we believe, are not always the same: in one instance, as in our own (No. 7), there was apparently an increase in the capacity of the true pelvis with some diminution in the diameters of the false pelvis; in another case there was prolonged crying and intense straining; and in yet another the increased size of the uterus was most evident. Possibly, then, the association of spina bifida with a large uterus in a wide pelvis resting upon relaxed supports and ligaments and accompanied by increased abdominal pressure will account for the rare occurrence of neonatal prolapsus uteri. The same causes would tend also to produce the eversion of the rectal mucosa which so constantly occurs along with the uterine displacement. It might be worth while to inquire whether in the rare cases of uterine prolapse in nulliparous adults and in young girls there is any evidence of a similar nervous origin in, for example, the presence of spina bifida occulta.

GENERAL CONCLUSIONS.—1. A real downward displacement of the uterus present at birth or appearing during the first week of life is a well-established anomaly, but one of the greatest rarity, only eight instances having been recorded.

2. It is to be distinguished from the so-called congenital hypertrophic elongation of the cervix, but may be accompanied by a certain degree of cervical hypertrophy.

3. It is practically constantly associated with lumbo-sacral spina bifida and rectal ectropion, and very often with clubbing of the feet; less common complications are hydrocephalus and hypertrichosis.

4. All the patients thus affected died soon after birth; but it is reasonable to attribute the fatal issue to changes in the spina bifida rather than to the uterine prolapse.

5. The prolapse may be complete or incomplete, and an edematous swelling of the prolapsed part commonly exists; but the anomaly does not give rise to a well-marked train of symptoms, for in some instances even the bladder and rectal functions have been normally performed.

6. Probably the chief causal factors are the results of disturbance of the innervation of the parts in consequence of the spina bifida, which seems generally to have been a myelo-

meningocele; but other etiological circumstances doubtless exist, such as increased abdominal pressure, the abnormally large size of the pelvic canal, and enlargement of the uterine cervix or body, or both.

24 MELVILLE STREET.

SOME CLINICAL JOTTINGS ON FIVE HUNDRED CASES OF LABOR.

BY

EUGENE R. CORSON, B.S., M.D.,

Member of the Medical Association of Georgia, of the American Medical Association,
and Fellow of the American Electro-Therapeutic Association,
Savannah, Georgia.

SEVERAL years ago I started out to keep notes, more or less full, of my obstetrical cases, and I have credited myself with every case which came directly under my care, even though called when the patient was moribund and when the opportunity for relief amounted to nothing. I had no thought of producing figures which could point to brilliant results; my aim was solely to get a truthful record of my own obstetrical experience in private practice. Obstetrics in private practice, even under the most favorable conditions, is still too haphazard, too much at the mercy of circumstances inimical to a skilful treatment, to tempt one to vie with those who practise in a well-regulated modern hospital where the conditions are under the control of those in authority. And the figures now available from the two sources show only too plainly the difference between the scientific organization and precision of the modern lying-in hospital and the disorder and misrule, the large human element and unhappy chance, with which the physician in private practice has to contend. And this is doubly true of the conditions which I have had to face. In Savannah there is a large colored element, irresponsible and indifferent, and I shall endeavor to bring out this local character of my work. Elsewhere, in my paper on "The Vital Equation of the Colored Race," which appeared in the "Wilder Quarter-Century Book," I brought together the mortuary statistics at our disposal to show the forces which are only too plainly working toward racial degeneration and disintegration. The obstetrician is also in a position to see these same forces at work. Irrespon-

sibility and indifference in a healthy animal seem natural enough and but an expression of the Divine intent, rather fostering than otherwise the natural animal life. But when in place of this healthy animal we have a human being who, transferred from his natural habitat, has to fight the battle of life among his superiors, these ancestral traits tend deathward. The lying-in cabin of the negro in his heyday of vigor and health offered a spectacle interesting and perhaps in a measure comic, but in his degeneracy the comic side becomes tragic and the interest a pathological one. The following scene seems more appropriate to the wilds of Africa than to a civilized community, and yet it furnished one of my cases : Called to a negress, *æt.* 16, who had been in hard labor three days. The decomposed head of a large child protruded through the vulva. On traction the head came off ; both arms came off in the same way ; the body of the child, from the distended abdomen, was delivered with difficulty ; the hand had to be passed into the uterus to remove the placenta ; the stench was terrible. The mother died a few hours later. As a background to the picture imagine the little cabin crowded with excited women, and the old midwife trying to comfort the patient and to quell the excitement by calling on them "to trust to de Lord."

This, of course, is an unusual case, but it shows to what an extent indifference and ignorance may be carried. With very few exceptions the colored cases to which I was called had been in the hands of ignorant midwives, who, after much delay, had sent for professional help. All the colored cases of eclampsia, for example—and they furnished most of the deaths—had sent for me after much precious time had been lost, and they were found in complete coma, with little or no return to consciousness after delivery. This carelessness and indifference are especially exemplified in a case of markedly contracted conjugate where I did a craniotomy and brought the woman through. I explained to her the nature of her trouble, urging her that should she become pregnant again she send for me early, so that I could bring on premature labor and give her a living child, besides saving her the danger of labor at term. This she promised to do ; and yet, becoming pregnant again, she only sent for me after many hours of severe labor and when practically moribund.

Of course the many complications which appear among my ninety-six colored cases do not represent the general run of obstetrical cases among them. The natural cases the physician

never sees, but even among these we are called to troubles during the puerperium caused by dirt and neglect. I have thus met with cases of sudden death due evidently to puerperal thrombosis and embolism, as well as deaths from sepsis and hemorrhage. The liability of the colored to eclampsia is very noticeable, as well as the great fatality from the disease. Uterine fibroids, as may be seen from my table, are a frequent complication, and much more so as a cause of miscarriage. Only he who practises in a community where there is a large colored element can appreciate the magnitude of this factor in the death rate, maternal as well as infantile. Foremost stands illegitimacy and the direct means taken to cover it up, especially active among the mixed races; syphilis, tuberculosis, malaria, measles, uterine fibroids, and the many occasions where gross carelessness of living produces the same result, are all potent factors toward this end. It will be a long time, if ever, before we can have any figures to show us how far this factor of destruction operates. However interesting definite figures would be, the above conditions being granted, it requires no gift of prophecy to see the ultimate issue.

A glance at my tables will show that all the laws of obstetrical proportion have been violated. There has not come to my notice, certainly, an array of cases which shows a greater deviation from the normal. Twenty-three cases of eclampsia out of 500 is certainly very remarkable, almost 5 per cent. Ludwig Knapp,¹ in a brochure just received, gives a *résumé* of 22 cases out of 4,480 labors, while the Baudelocque Clinic² for 1894 gives 9 cases out of 2,137 deliveries, and for 1895 but 5 in 2,043 deliveries.

Twenty-one breech cases in 500 gives about 1 in 23, when 1 in 30 is the average (including miscarriages). Twelve cases of twins gives 1 in 41 labors, while statistics give 1 in 80-90. There was one case of triplets, but one chance in 7,000. Thirteen cases of occiput posterior is certainly in excess of the usual figures. There were four transverse presentations and four cases of placenta previa. Four cases of pernicious vomiting compelled me to bring on labor. The main feature of my record, however, is the number of forceps cases, 133, which

¹ "Klinische Beobachtungen über Eklampsia," von Dr. Ludwig Knapp. Berlin, 1896.

² "Fonctionnement de la Maison d'Accouchements Baudelocque." Clinique de la Faculté dirigée par le Professeur Adolphe Pinard. Année 1894. Paris, 1895. The same for 1895.

compels me to explain myself. To many, I am sure, this will look wrong, but I shall endeavor to justify myself. On the strength of my frequent application of the forceps I wrote a short paper on the "Personal Equation in the Use of the Forceps," and I shall repeat much of what I wrote there.

As Goethe pointed out years ago, Nature often reveals her secrets in her malformations, so I believe our failures and mistakes prove more instructive than our successes. I shall therefore analyze my mortality tables somewhat in detail. They certainly are a great contrast to two papers I have before me, one giving 3,036 cases of labor without a death and with a very small infant mortality, and the other a record of 590 cases without a death and with an infant mortality of one. But I contend that such reports simply show what may happen in healthy localities and under favorable conditions, and that good fortune has more to do with such unprecedented results than any special skill or sagacity. There is always, too, a lurking suspicion that, in the great desire to show a fine array of figures reflecting credit upon the reporter, certain bad cases are omitted, in all honesty, however, as occurring under conditions over which the reporter had no control, and which he imagines he has a technical right to throw out. And this is especially apt to be the case with those preaching a *laissez-faire* policy.

I have reported somewhat in detail the case of hemoglobinuria, apparently threatening the life of my patient and calling for rapid delivery. It is interesting from its rarity; I find no mention of it in the literature as a complication of labor.

To facilitate the review of my cases I have prepared a series of tables which show at a glance their chief features and the treatment employed. No one can be more conscious of the meagreness of my notes, compared with those which come from a well-regulated hospital where careful examinations are made before delivery and where the clinical records are minute up to the discharge of the patient. My excuse is that such notes are often quite impracticable, if not impossible, in private practice. Careful pelvic measurements and measurements of the child are quite necessary to a scientific study of labor and different methods of treatment, and yet how often impracticable are such measurements in private practice! A pelvic examination here and there has but little value in the general estimate. More recently I have made it the rule to measure the pelvis in every primipara. This should be done as carefully as the examination of the urine. I wish to testify to the great value

of external palpation in making out the position of the child. Practice will enable one to obtain by this means more definite information than by the vaginal examination, and it is, moreover, so much better for the patient. The great necessity of asepsis and antisepsis is driven home to us every day, and I have tried to carry it out as far as possible. The lying-in hospital is the only place where it can be carried out in *every* case, and the wonderful results obtained testify to the glory of the new science. In the Baudelocque Hospital in 1894 there were but 7 deaths out of the 2,137 women delivered during the year. No more appropriate motto could be cut over the portal of the modern hospital than Ovid's injunction in his "*Ars Amatoriæ*"¹: "*Si nullus erit pulvis, tamen excute nullum*"—if dust be none, yet brush that none away.

Occiput Posterior Delivery.—As seen by the table (pages 180–181), the head was delivered occiput posterior in 13 cases, 6 colored and 7 whites: 1 came without help, 1 craniotomy after forceps failed; 8 without any perineal tear, and 5 with more or less tear. In one colored, called after several hours of severe labor, I found an undilated os jammed tight up against the pubis, with severe pains, putting the posterior portion of the cervix on the stretch. I nicked the os and gradually dilated by fingers and hand and applied forceps; child was dead and the perineum badly torn. Two cases were in the same patient. In one case seen in consultation the attending physician had diagnosed occiput posterior from the pressure on the anterior lip of the cervix during the pains while the posterior lip remained free. He thought this a good diagnostic sign. It may be explained by the extension of the head, the chief factor in failure of the head to rotate, the frontal bone against the pubis and in a line with the expulsive force, with the occiput posteriorly uninfluenced.

In one colored, long neglected, the head was delivered occiput posterior with forceps—a very easy delivery, but the patient in collapse, dying twenty-four hours later. I could not make out absolutely the cause of death. I cannot regard an occiput posterior delivery as the obstetrical bugaboo which some of our text books would lead us to think. Other things being equal,

¹ Utque fit, in gremium pulvis si forte puella
Deciderit, digitis excutiendus erit.
Et si nullus erit pulvis, tamen excute nullum,
Quælibet officio causa sit apta tuo.

—OVIDII NASONIS *Artis Amatoriæ* liber primus, 149–152.

OCCIPUT POSTERIOR DELIVERY.

No.	Race.	Age.	Para.	Time.	Presenta- tion.	Duration of labor.			Mode of delivery.
						First stage.	Second stage.	Third stage.	
1	Col.	24	I.	Term.	O. D. P.	24 hours.	6 hours.	15 minutes.	Forceps failed ; craniotomy.
2	"	23	II.	"	O. L. P.	10 hours.	$\frac{1}{2}$ hour.	12 minutes.	Forceps; easy de- livery in four minutes.
3	"	22	I.	"	O. Post.	48 hours.	$\frac{1}{2}$ hour.	5 minutes.	Forceps; easy de- livery.
4	"	16	I.	"	"	4 hours.	$\frac{1}{4}$ hour.	Few minutes.	Phlebotomy; mor- phia; forceps.
5	W.	30	III.	"	O. D. P.	6 hours.	$\frac{1}{4}$ hour.	Few minutes.	Forceps; easy de- livery.
6	"	21	I.	"	O. L. P.	12 hours.	1 hour.	7 minutes.	Unaided; easy....
7	Col.	27	I.	"	O. Post.	48 hours.	2 hours.	Few minutes.	Forceps; easy; chloroform had a bad effect and was discontin- ued.
8	W.	31	IX.	Eighth month.	"	4 hours.	$\frac{1}{4}$ hour.	5 minutes.	Forceps; easy.....
9	Col.	17	I.	Term.	"	16 hours.	1 hour.	5 minutes.	Nicked the os an- teriorly and pos- teriorly, dilated with hand, and delivered with forceps after an hour's effort.
10	W.	31	IV.	"	O. L. P.	6 hours.	$\frac{3}{4}$ hour.	Few minutes.	Forceps; some dif- ficulty from slip- ping of blades.
11	"	..	I.	"	O. Post.	Several hours.	3 hours.	Few minutes.	Forceps; very dif- ficult.
12	"	28	III.	"	"	12 hours.	$\frac{1}{2}$ hour.	4 minutes.	Forceps in fifteen minutes.
13	"	36	I.	Eighth month.	O. D. P.	24 hours.	$2\frac{1}{2}$ hours.	15 minutes.	Forceps: very easy.

cases where the head fails to rotate are more prolonged and the danger to the perineum greater, and yet their delivery by forceps differs in no way from the usual forceps cases. In three cases only was the extraction difficult, in one of which the forceps failed and I had to resort to craniotomy on account of an enormous head and a small pelvis. I am convinced that a small head with rapid descent frequently fails to rotate, and the forceps is just here so valuable, as it flexes the head by bringing down the occiput with the forehead fixed against the pubis.

OCCIPUT POSTERIOR DELIVERY.

Puerperium.	Result.		Remarks.
	Mother.	Child.	
Fever one week...	Recovery.	Death	Very large child.
Uneventful.....	"	Recovery.	Small child ; no tear.
Fever for two weeks.	"	"	Tear requiring three stitches.
Convulsions during and following labor	"	"	Slight tear.
Uneventful.....	"	"	No tear.
"	"	"	No tear.
Anuria; collapse..	Death in 24 hours.	Death	A long-neglected case ; could not make out cause of death.
Uneventful.....	Recovery.	Death in 24 hours.	Last five children born dead or dying shortly after birth.
"	"	Death	Impacted head, tight os, hard labor without progress; perineum torn.
"	"	Recovery.	Large child, the second O. Post. in same patient ; no tear.
"	"	"	Tear requiring five stitches ; seen in consultation.
"	"	"	No tear.
"	"	"	Tear requiring three stitches.

In formulating the course to be pursued in these cases I should draw a sharp line between those where the head is still right or left Occ. Post. and those where the occiput has already settled into the sacral hollow. In the former the chances are about 19 to 1 that rotation will take place naturally. Should the head not engage, or not rotate after engaging, the aseptic hand may attempt flexion, but no more; and this, I believe, is not very successful. Both failing, we have forceps or version, and by all odds the former if possible. I believe that attempts to rotate with the forceps are more apt to injure than to help,

even though it gave Smellie "great joy" when he succeeded in this manœuvre.

Barnes showed his obstetrical wisdom when he wrote: "The head can be born very well preserving the occiput posterior position throughout. Indeed, I think this occurs more frequently than Naegele represents. Nor does the case call for any amount of force. By aid of the forceps the delivery is nearly as easy as when this instrument is applied to an occiput anterior position. In the event of delay I therefore resort to the long forceps."¹

I also believe in Barnes' suggestion of flatness of the promontory as a cause of this position. He speaks of delivering a woman three times with the occiput posterior. I delivered the same woman twice in this position. I made out slight conjugate contraction in this case, all her children being delivered with forceps.

In the Baudelocque Clinic (1894) I notice 4 deliveries O. S. out of 1,806 vertex presentations, all multiparæ, one child dead, and one forceps case premature. In 1895 there were 6 deliveries O. S. out of 1,718 vertex presentations, 1 primipara and 5 multiparæ, all unaided and fairly easy. The greater frequency of this delivery in multiparæ points, I think, to a rapid and easy descent of the head; a certain amount of obstruction compels or favors rotation. Though I had 8 primiparæ so delivered, 4 showed early descent of the head and were very easily delivered, and 1 had eclampsia with but feeble or no expulsive effort.

Obliquity of Naegele.—In 3 cases I noted this complication, and they possess some features sufficiently interesting to be briefly reported.

The first case was a short, thick-set German woman in her fifth labor. When seen by me she had been in labor several hours, the waters having broken and the cord prolapsed and pulseless. The head, in the first position, had not engaged, with the right parietal presenting. I did a podalic version, the occiput passing under the pubis. The child was dead. The cause of the trouble was probably a pendulous abdomen with premature rupture of the membranes, the head being suddenly set in this position and unable to engage.

The second case was also a German woman and in her fifth labor. Here, too, there was premature rupture of the mem-

¹ "Lectures on Obstetric Operations, including the Treatment of Hemorrhage, and forming a Guide to the Management of Difficult Labor." by Robert Barnes, M.D., F.R.C.P., New York. 1876, p 71.

branes with prolapse of the cord, the head in the second position, and the left parietal presenting. I applied my forceps with some difficulty, but delivered without much effort. Marked print of forceps blade over left parietal. Child dead.

The third case is interesting as one of "posterior parietal obliquity." A colored woman, æt. 38, in her eleventh pregnancy. In labor fifteen hours. Head firmly wedged in second position, right parietal bone presenting. Tarnier's forceps applied with considerable difficulty. After fifteen minutes of strong traction the head suddenly slipped from its tight place and appeared at the vulva, and delivered without perineal tear. Marked print of forceps blades over frontal eminences. Child living.

Breech Cases.—As seen by the table (pages 184–185), I had 21 breech presentations, 9 colored and 12 white; 14 living children and 7 dead, 3 of which were premature and 3 dead before delivery; 4 cases of twins and 1 case of triplets, 2 of which came by the breech and 1 by the vertex.

The last case is interesting as one of marked vaginismus, requiring anesthesia to permit of an examination. This is the only case I have seen with this condition in pregnancy.

Shoulder Presentation.—As shown by my table of version cases,¹ I had 4 shoulder presentations. Three were neglected cases, the child dead before delivery. To one case I was called in the beginning before the waters had broken, and a living child was delivered in fifteen minutes. Given a roomy pelvis with intact membranes, and version becomes a very simple matter.

Face Presentation.—I have but one face presentation to record, and, strange to say, one of the easiest labors I ever attended. Case 188, white, æt. 34, VIpapa (illegitimate); the presentation was M. D. P.; labor rapid and easy, the chin rotating under the pubic arch; first and second stages one hour and a half, third stage seven minutes; no other complication.

Twin Births.—I have tabulated (pages 186–187) 12 twin births, 9 whites and 3 colored. Of the 24 children born 8 were born dead (2 premature and 1 dead before delivery). Two colored cases complicated by a uterine fibroid and hydramnios. A glance at the table will show their chief features.

Triplets.—There was one case of triplets, which is sufficiently rare to merit mention. A negress, æt. 36. First child born by vertex as I reached her; delivered the other two by the breech.

¹ This table will appear in a succeeding number of the JOURNAL.

BREECH CASES.

No.	Race.	Age.	Para.	Position.	Duration of labor.			Complications.	Character of labor.
					First stage.	Second stage.	Third stage.		
1	Col.	24	.....	S. L. A.	24 hours.	2 hours.	10 minutes.	Legs extended on body and arms alongside head.	Very slow.
2	"	35	VII.	S. D. A.	14 hours.	1½ hour.	5 minutes.	Twins.	Easy.
3	"	35	VII.	S. L. A.	14 hours.	1½ hour.	5 minutes.	"	"
4	"	25	III.	.....	3 days.	2 hours.	10 minutes.	The second twin. First child born by vertex alive.	Very slow.
5	W.	20	I.	S L. A	24 hours	1½ hours.	10 minutes.	None.....	Slow.
6	"	33	XI.	"	2 hours.	1½ hour.	12 minutes.	"	Easy.
7	Col.	33	IX.	S. D. A.	Many hours.	1 hour.	4 minutes.	Right foot at vulva.	Slow.
8	W.	22	I.	"	1½ hours.	1 hour.	5 minutes.	None.....	Normal.
9	"	23	II.	S. D. P	16 hours	2 hours	5 minutes	"	"
10	Col.	36	IX.	.....	1 hour	¼ hour.	15 minutes.	Triples.....	Easy.
11	"	36	IX.	.....	1 hour.	10 minutes.	15 minutes.	"	"
12	W.	25	III.	S D A.	3 hours.	1 hour.	12 minutes.	Twins.	"
13	"	25	III.	"	3 hours.	10 minutes.	12 minutes.	"	"
14	"	31	II.	.....	24 hours.	1 hour.	Few minutes.	None.....	"
15	"	31	VII	.....	Several hours.	1½ hour.	5 minutes.	"	"
16	Col.	...	VIII.	.....	Very quick.	Very quick.	Few minutes.	"	"
17	W.	19	I.	S. L. A.	48 hours	1 hour.	10 minutes.	"	Normal.
18	"	29	IV.	.....	10 hours.	15 minutes.	Few minutes.	Twins.....	Premature—sixth month.
19	"	29	IV.	.....	10 hours.	Few minutes.	Few minutes	"	Premature—sixth month.
20	Col.	35	X.	S. L. A.	48 hours.	1½ hour.	Few minutes.	Pendulous abdomen; hydramnios.	Slow.
21	W.	25	I.	S. D. A.	8 hours.	1½ hour.	1½ hour.	Great vaginismus; very debilitated.	Difficult.

BREECH CASES.

Mode of delivery.	Result.		Sex.	Remarks.
	Mother.	Child.		
Drew down right leg.	Recovery.	Death.	Male.	
Strong traction brought down arm from along-side head.	"	"	"	First child dead several hours from prolapse of cord.
Easy	"	Living.	Female.	Uterine inertia from great distension.
Brought down leg.	"	Death.	"	Cord pulseless before birth.
" " "	"	Living.	"	Pulsation in cord stopped, and in hastening delivery broke child's thigh. Fracture united perfectly.
Unaided	"	"	"	
Firm traction	"	Death.	Male.	Child long dead.
Unaided	"	Living.	Female.	Very quick labor.
"	"	"	Male.	Slight uterine hemorrhage off and on up to sixth month.
Brought down leg.	"	"	Female.	The second triplet. First child born by vertex.
" " "	"	"	Male.	
" " "	"	"	Female.	} Both twins born rapidly.
" " "	"	"	"	
Unaided	"	"	Male.	Eighth month. Child very feeble, dying in a few hours.
"	"	"	"	
"	"	"	"	
"	"	"	"	
Brought down leg.	"	Death.	"	
" " "	"	"	"	
Brought down foot.	"	Living.	Female.	
Brought down leg under chloroform.	"	Death.	Male.	Great vaginismus, requiring chloroform to make an examination.

TWIN BIRTHS.

No.	Race.	Age.	Para.	Presenta- tion and position.	Duration of labor.			Sex.
					First stage.	Second stage.	Third stage.	
1	W.	33	IV.	Vertex.. O. L. A.	?	$\frac{1}{2}$ hour.... 10 minutes.	$\frac{1}{2}$ hour....	Girl. ..
2	W.	30	III.	Vertex.. ..	24 hours..	2 hours.... $\frac{1}{4}$ hour....	Few minutes.	Boy. Girl.
3	Col.	25	III.	Vertex.. Breech.	3 days....	2 hours.... $\frac{1}{2}$ hour....	10 minutes..	Boy. Girl.
4	W.	35	IV.	Vertex.. ..	2 hours..	$\frac{1}{2}$ hour.... 1 hr. 20 min.	10 minutes..	Girl. ..
5	Col.	35	VII.	S. D. P. S. L. A.	14 hours..	$\frac{1}{2}$ hour.... $\frac{1}{4}$ hour....	5 minutes..	Boy. Girl.
6	Col.	38	....	..... .....	Very rapid.	Very rapid.	Very rapid.	Boy. Girl.
7	W.	..	III.	S. D. A. O. L. A.	3 hours..	25 minutes. 1 hour.....	12 minutes.	Girl. ..
8	W.	24	I.	Vertex.. ..	Very rapid.	Very rapid..	Few minutes.	Girl. ..
9	W.	25	III.	O. L. A. O. D. A.	2 hours..	3 minutes.. 8 minutes..	5 minutes..	Boy. ..
10	W.	20	I.	O. L. A. O. D. A.	48 hours..	4 hours.... $\frac{1}{2}$ hour....	15 minutes..	Girl. ..
11	W.	29	IV.	Breech.. ..	10 hours..	10 minutes. 5 minutes..	Few minutes.	Boy. ..
12	W.	22	III.	Vertex.. ..	2 hours..	2 hours....	15 minutes.	Boy. ..

The first two were girls with one placenta and one sac; the third child a boy with separate placenta and membranes—three strong children, crying lustily and weighing together 18½ pounds. Just fifteen months before delivered the same woman of twins.

Uterine Fibroids Complicating Labor.—Five cases were complicated with uterine fibroids, and they present some interesting features. In Case 68, a negress, there was a twin

TWIN BIRTHS

Mode of delivery.	Puerperium.	Result.		Remarks.
		Child.	Mother.	
Unaided	Uneventful.	Living ..	Recovery.	
"	"	Dead ...	"	Born dead. Dying shortly after birth.
Forceps	Fever and jaundice	Dead ...	"	Complicated by uterine fibroids and hydramnios.
Unaided	Uneventful.	Living . Dead ...	"	Great distension : uterine pains poor.
Strong traction	"	Dead ... Living .	"	First child dead several hours from prolapsed cord.
Unaided	"	Living .. "	"	Small uterine fibroid at fundus.
Drew down right knee. Ruptured membranes.	"	Living .. "	"	
Unaided	Malarial fever	Living .. "	"	
"	Uneventful.	Living .. "	"	
"	"	Living .. "	"	
"	"	Dead ... "	"	Six and a half months premature.
"	Slight fever.	Living . "	"	

pregnancy, with hydramnios and a fibroma the size of an orange at the fundus. One child presented by the vertex and was delivered alive with forceps. The second child presented by the breech and died shortly after birth.

Case 165, a mulattress, was one of puerperal eclampsia, with a fibroid in the anterior wall low down, necessitating delivery by version ; child delivered dead ; mother recovered.

Case 225, colored, was again a case of twins, the tumor at the fundus ; both children born easily and alive.

Case 417, a negress who had been in hard labor twenty-four hours. Examination under chloroform revealed a large tumor quite filling the vagina. The examining finger, by hugging the symphysis, could just reach the presenting head. The tumor was found to arise from the posterior cervical lip. Gradually inserting my hand to get a better grasp preparatory to drawing it down and cutting it away with the scissors, I felt it gradually give way, and I finally tore it completely loose—as clean a tear as though cut by a knife. It weighed 1 pound and 11 ounces and had every appearance of an ordinary fibroma. I applied forceps and delivered a living child. Patient made an uninterrupted recovery. Again pregnant, she has come to me for examination, and I find a very good cervix, the posterior lip still somewhat enlarged ; advised her to go to term.

Case 450 is the only white case ; a miscarriage at five and one-half months from uterine fibroid in posterior wall involving the upper part of the cervix and making delivery very difficult; the fetus removed piecemeal. One month later, examining her preparatory to the use of galvanism, I found the tumor gone, having been swept away in the general uterine *débâcle* following the miscarriage. This, I believe, happens not infrequently. She became pregnant shortly afterward, and went to term and was delivered of a living child.

Puerperal Eclampsia.—I had 23 cases of puerperal eclampsia, almost 5 per cent—certainly a very remarkable showing ; the table given (pages 190-193) shows their chief features. There were 7 whites with 1 death and 2 dead children, and 16 colored with 6 deaths and 6 dead children. The first 20 cases were reported in the *New York Medical Record* for October 24th, 1891. This high mortality among the colored tallies with my experience in other diseases among them. Not only do they seem more liable to the disease than the whites, but the mortality is three or four times as great. This mortality is explained by a less resistive power and by a neglect and indifference characteristic of the race. Attended as they are by ignorant “grannies” unworthy of the name of midwife, many hours pass before they send for intelligent help. I would find, when called to most of these cases, that they had been in convulsions several hours, unconscious, with no progress to the labor, and that in spite of all treatment there was no rally or return to consciousness. They were mostly very young primiparæ, unmarried, and in unhygienic surroundings. It is a sorry picture and shows how helpless unaided Nature is to grapple with the case.

One, strange to say, recovered, though pneumonia developed on the second day—a very fatal disease among them; 1, in her seventeenth pregnancy, recovered, complicated with a uterine fibroid; 1 developed the disease a month after her confinement and 1 six days after delivery; 1 died six weeks after I delivered her, in other hands, but I have put it down among my own deaths, as the fatal result was evidently due to the eclampsia. The 1 white death was a strange case—a twelfth pregnancy, a *foudroyant* type; the convulsions coming on after delivery, uninfluenced by treatment, with no return to consciousness. This case occurred during my salad days, and I have often thought that had I bled her well I might have saved her.

The ultimate cause of this disease is still unknown. The albuminuria and other kidney symptoms are but symptoms of a blood dyscrasia, the result evidently of some organic poison from tissue waste which, in the increased metabolism of pregnancy, the system is not able to throw off. In spite of our ignorance of its true pathology there has been a definite advance in its treatment since 1857, when Carl Braun wrote the first essay on the subject which bore evidence of a scientific treatment. He gives the mortality as 30 per cent. The first advance came with the introduction of anesthesia, which permitted rapid delivery without shock to over-sensitive nerve centres. To the French school, and especially to Charpentier, we owe the assured knowledge of the value of chloral and morphia. Phlebotomy, a much older remedy, fell into disuse, but has fortunately been revived. These four agents permit us to put over-excitable and over-active nerve centres in a splint till the storm blows over. Phlebotomy I have made use of repeatedly, and I can testify to its efficiency in stopping convulsions or in preventing an attack when imminent; a quickening of the pulse and a sudden stoppage of the lochia I have found to precede a convulsion, and a timely free bleeding will bring down the pulse and start the lochia again; suppressed urine will also start again. Further than that, the patient will respond to half the dose of anodyne previously required. A side thought in regard to anesthesia suggests itself to me here. It has been my own experience—and others on reflection will be able to corroborate it, I think—that anesthesia, be it by chloroform or ether, is more difficult with the vigorous and full-blooded. May not phlebotomy in certain cases be a wise preliminary to anesthesia? I have frequently noted that the anesthetic acts better

CASES OF PUERPERAL ECLAMPSIA.

No.	Race.	Age.	Para.	Time.	Condition during pregnancy.	Urine.	Character of labor.
1	W.	30	I.	Term	Very unhappy marriage, and complaining throughout her pregnancy; anasarca.	Albumin...	Eight convulsions before and during delivery; labor eight and a half hours.
2	Col.	18	I.	"	Illegitimate; apparently healthy.	"	Labor ushered in by many convulsions; when seen by me, unconscious, pulse 160, respiration 44.
3	W.	18	I.	"	Nervous, hysterical; anasarca; headache; impaired vision.	"	Onset sudden at 3 A.M.; three convulsions before delivery; labor five hours.
4	Col.	30	V.	Eighth month.	Anasarca	No record..	Several hours in labor, with many convulsions.
5	"	20	I.	Term...	Fair health; anasarca.	Albumin..	Twelve hours in labor; seven convulsions.
6	"	18	I.	Eighth month.	Anasarca; maniacal; headache.	No record..	In labor six hours....
7	"	20	I.	Term....	Anasarca; headache and poor vision one month before labor.	"	In labor five hours....
8	"	18	I.	"	Very good.. ..	Albumin....	Hard labor.....
9	W.	25	I.	"	Anasarca two weeks before delivery.	"	Twenty-four hours, in labor; twelve convulsions during this time.
10	Col.	15	I.	"	Headache for four months; anasarca one month before labor.	No record..	In labor four hours; five convulsions; unconscious.
11	"	31	IV.	Eighth month.	Nothing unusual noticed.	"	In labor twelve hours.
12	"	18	I.	Term....	Anasarca	"	In labor sixteen hours; three convulsions; unconscious.
13	"	38	XVII.	"	Complicated by uterine fibroid; vigorous; some anasarca.	Albumin....	In labor six hours
14	W.	40	XII.	"	Healthy pregnancy apparently.	"	In labor two and a half hours.
15	Col.	18	I.	"	Apparently healthy..	No record..	Easy; two convulsions; semi-conscious.

CASES OF PUERPERAL ECLAMPSIA.

Mode of delivery.	Puerperium.	Result.		Remarks.
		Mother.	Child.	
Forceps under ether; position O. L. A.; perineum torn.	One convulsion after delivery; otherwise uneventful.	Recovery..	Death on third day.	Three children since without trouble.
Vertex; delivery by forceps nine hours after beginning of attack.	Never regained consciousness.	Death....	Death..	A delay of eight hours before summoning help.
Vertex presenting; forceps under chloroform.	Uneventful..	Recovery..	Recovery..	Slight albuminuria for one year; three children since without trouble.
Vertex presenting; chloroform; Barnes' dilators; forceps failed; delivered by feet.	Never regained consciousness.	Death....	Death....	In convulsions several hours without help.
Vertex presenting; chloroform; forceps; morphia.	Uneventful; cataplexy following the convulsions.	Recovery..	Death in twenty-four hours.	Child asphyxiated; employed artificial respiration one hour; in convulsions six hours without help.
Vertex presenting; cervix dilated by hand; ether; forceps; perineal tear.	Uneventful.....	"	Recovery..	Ether controlled convulsions immediately.
Vertex presenting; dilated cervix with hand; ether; forceps; double episiotomy.	One convulsion after delivery.	"	"	Five hours without help.
Unaided ...	Anasarca; four weeks and five days after delivery, hard convulsions set in; had eight convulsions; unconscious.	"	"	One grain of morphia hypodermatically controlled convulsions.
Vertex presenting; chloroform; forceps.	Uneventful..	"	"	Chloroform and delivery at once relieved.
Chloroform; forceps; double episiotomy; three-quarters of a grain of morphia subcutaneously.	Pneumonia of right lower lobe developed on second day.	"	"	One convulsion after delivery.
Vertex presenting; chloroform; forceps.	Two convulsions after delivery; never regained consciousness.	Death....	"	Eight hours without help.
Morphia; forceps.....	Never regained consciousness.	"	Death..	Sixteen hours without help.
Vertex presenting; ether; version after forceps failed; morphia.	Fever with jaundice two weeks.	Recovery..	"	Uterine fibroid made delivery difficult.
By vertex; unaided..	Four convulsions following labor; never regained consciousness.	Death....	Recovery..	Apparently normal labor. foudroyant type; chloroform and morphia without benefit.
"	Uneventful.....	Recovery..	"	Bled her sixteen ounces with immediate relief

No.	Race.	Age.	Para.	Time.	Condition during pregnancy.	Urine.	Character of labor.
16	W.	22	I.	Term. . . .	Vigorous, though great anasarca.	Albumin. . . .	In labor four hours. . . .
17	"	25	I.	"	Anasarca; great nausea; straining; great edema of pudendum.	"	Many convulsions before and after delivery; in labor three hours.
18	"	30	I.	"	Very unhappy married life; frail and nervous.	"	Very easy.
19	Col.	18	I.	Seventh month.	Very plethoric; anasarca.	"	In labor twelve hours.
20	"	19	II.	Term. . . .	Normal apparently; large, plethoric.	"	Natural.
21	"	16	I.	"	Apparently healthy; some anasarca.	"	In labor four hours; O. Post.
22	"	17	I.	"	Apparently healthy; some anasarca.	No record..	In labor five hours; by vertex; ten convulsions before delivery.
23	"	17	I.	"	Anasarca, otherwise apparently well.	Albumin. . . .	In labor twelve hours; eighteen convulsions.

after a certain amount of blood has been lost. The accidents from anesthesia have usually occurred where they were least expected—namely, in the vigorous and full-blooded, as we understand the term.

As will be seen by the table, in most of the colored I did not get half a chance to test any treatment, the patient being practically moribund when called. It is in these cases especially that the accouchement forcé and Dührssen's incisions prove valuable. It is about the only treatment possible. One severe case, where I was called early, yielded at once to this heroic method.

Granting that veratrum viride has an influence upon this disease, what this drug may accomplish in twelve to twenty-four hours, in repeated doses, one well-directed dose of chloral or morphia accomplishes at once.

Among my strange experiences with this disease I must

CASES OF PUERPERAL ECLAMPSIA—*Continued.*

Mode of delivery.	Puerperium.	Result.		Remarks.
		Mother.	Child.	
Vertex presenting; dilated cervix; chloroform; forceps.	Several convulsions; ill for two weeks.	Recovery..	Death. . .	A timely bleeding might have prevented the attack.
Vertex presenting; chloroform; acupuncture of labia; forceps; bled her thirty-three ounces.	Several convulsions after labor; very ill for two weeks.	"	Recovery..	Pulse over 100 for a month; slight albumuria for a year; two children born since without any trouble; health good.
By vertex; one hard convulsion as the head passed.	Fourteen convulsions; bled her forty-four ounces.	"	"	Chloroform and chloral; lochia stopped after each convulsion, to reappear after each bleeding.
Vertex presenting; chloroform; forceps; bled her thirty-four ounces.	Hysterical and maniacal; morphia.	Death in six weeks	Death. . . .	Twelve hours without help; died in other hands.
Unaided.....	Convulsions began six days after labor; eight convulsions in all; bled her thirty-two ounces.	Recovery..	Recovery..	Suppressed lochia immediately re-established by bleeding.
Chloroform; forceps; bled her twenty ounces; morphia.	Uneventful.....	"	"	Perineum torn and stitched.
Bled her thirty-two ounces; chloroform; Dührssen's incisions; dilated cervix with hand; forceps.	"	"	"	Perineum torn and stitched.
Bled her sixteen ounces; dilated cervix with hand; Dührssen's incisions; chloroform and forceps.	Never regained consciousness.	Death. . .	"	Without help eleven hours, during which time she had eighteen convulsions.

mention having delivered three sisters, white, in the same family, all with a severe type of the disease, the youngest, a quite recent case, complicated with great hydramnios and an acephalous monster. The case died. Nature seemed evidently bent on doing her worst. It would certainly point to a predisposition. Further, one attack seems to give immunity against a subsequent one. Never in my experience has a patient had a second attack, and the literature seems to bear me out, too. The best results I have seen come from Ludwig Knapp,¹ who reports 22 cases out of 4,480 labors, with but 1 death, and 5 deaths among the children; 11 delivered by forceps, 4 perforations—twice on the living and twice on the dead—and twice the induction of premature labor, in 1 of these Dührssen's incisions, making in all 17 artificial deliveries. The principle is followed of as rapid a delivery as is consistent with the protection of the

¹ Op. cit.

soft parts and the prevention of shock. The alcohol-chloroform-ether mixture was the anesthetic used, while chloral and morphia were not overlooked. Venesection was once used with immediate relief.

This is, of course, a good showing, and is quite a contrast to my own. It is the colored cases which put me to a disadvantage. The mortality among them will always be high, no matter what treatment is carried out. It is by prophylaxis that we can accomplish the most; the milk diet, rest in bed, hot baths, and free catharsis will do wonders. If, in spite of these remedies, the violent facial neuralgia with eye symptoms continue, I bring on labor at once. Such a case I have just brought through: induced labor at eight months; a healthy, strong child with immediate relief to the mother.

That eclampsia is a different disease from acute desquamative nephritis was shown me by a case of the latter disease to which I was called four days after delivery. The disease had probably antedated the confinement a month. There was great anasarca, dyspnea, rapid weak pulse, a constant harassing cough without expectoration, and agonizing neuralgic stabs in occiput and temple; scanty, high-colored urine, loaded with albumin and casts, specific gravity 1040 (no sugar). Died comatose, but *without any convulsions at any time*.

Hemoglobinuria in Labor.—I shall report here, as in a measure not unrelated to eclampsia, a case of hemoglobinuria, and feel that its great rarity justifies a full report. Mrs. R., white, æt. 32, VIpara, sent for me the evening before her confinement on account of vomiting and pain in the stomach; very restless and anxious. Gave chloranodyne; saw her two hours later, unrelieved, and gave morphia, one-quarter grain subcutaneously, which relieved her.

Called suddenly to her at 5 A.M. the next morning to find her in great distress, with all the symptoms of pulmonary congestion; great dyspnea, cyanosis, anxiousness, restlessness, liquid râles through both lungs, heart action rapid and feeble; she thinks she is dying and begs me to save her; there is a slight show and the cervix soft and dilatable. Immediately gave a little chloroform, applied forceps, and delivered with ease and rapidity a well-nourished and healthy child; no tear: restitution to the left; easily expressed the placenta. Though relieved of the abdominal distress, the cyanosis, dyspnea, and restlessness continued: applied hot turpentine stupes to entire chest until the skin showed a good color and the dyspnea

passed off. I had drawn off by catheter a pint of deep mahogany-colored urine, clear and quite odorless, specific gravity 1012, slightly acid. On boiling a thick coagulum formed, almost a solid mass, of a chocolate color, this brown mass partly separating from the cream-colored albumin clot; the test tube could be almost inverted without the escape of serum. On applying Mahomed's test of tincture of guaiacum and ozonized ether, a vivid green appeared, slowly turning to blue. Made control tests with blood, saliva, and KI; urine perfectly clear, deep cherry red in color, leaves no deposit on standing, and shows by the microscope no corpuscles.

This patient had complained for some time of "dyspepsia," heartburn, and pain in the stomach. Up to the time of the attack the urine had been clear. The day before she had eaten heartily of ham and vegetables, and she vomited them but half-digested after her delivery. By evening she was much improved; morphia, one-third grain subcutaneously; slept all night. The next morning the pulse was 120, temperature $99\frac{1}{2}^{\circ}$, dyspnea almost gone; pain in right side and great sensitiveness over hepatic area; urine free, reddish-clay color, still loaded with albumin, hemoglobin almost gone; lochia normal; by evening a severe pleurodynia in right side; there is slight general icterus; hepatic area still very sensitive; repeated morphia. By third day urine perfectly clear, pulse 98, no temperature, milk plentiful. On seventh day large external piles appeared; gave chloroform, stretched the sphincter, and replaced the tumors; pulse 100, patient nervous and sleepless, occasionally maniacal, singing, whistling, and talking incessantly. By the tenth day these symptoms had disappeared; patient convalescent; only a trace of albumin; by the second week this had disappeared. A year later I did a trachelorrhaphy for a slight tear; the patient has occasional hysterical attacks with great anxiety; her health otherwise is perfect.

In this case there was no doubt of the presence of hemoglobin, or, according to Hoppe-Seyler and Halliburton, methemoglobin, though the latter regards the guaiacum test as untrustworthy. The suddenness of the attack corresponds to the condition of "paroxysmal hemoglobinuria," resembling somewhat attacks of ague. The symptoms pointed to the liver as the *fons et origo mali*. The brown coagulum formed on boiling is, according to Halliburton, due to the globin, the proteid constituent of hemoglobin. The patient had taken no medicine previous to the attack. The pulmonary symptoms

were probably due to the rapid destruction of the red blood corpuscles. Hemoglobinuria as a complication of labor must be very rare; I have met with no mention of it in the literature. Morphia subcutaneously gave immediate relief.

It would be interesting to know what relationship, if any, exists between this condition and the ordinary albuminuria of pregnancy. The cause or causes producing this latter trouble operate slowly and insidiously; possibly these same causes becoming suddenly operative would produce hemoglobinuria.

(To be continued.)

ACETONE IN ECLAMPSIA.

BY

J. A. CLARK, M.D.,

Professor of Gynecology, Harvey Medical College,

AND

L. L. SKELTON, A.M., M.D.,

Professor of Physiology, Northwestern University, Woman's Medical College,

Chicago, Ill.

THE pathology and etiology of this rather rare affection of pregnancy is, and always has been, in an unsatisfactory condition. The interdependence of the metabolism which goes on between the mother and fetus has never been explained in a manner to account for the origin of the poison or poisons developed in eclampsia. Of the many theories advanced to explain the nature of this affection, none have proven satisfactory nor able to withstand chemical and microscopical tests. One of the oldest of modern theories is that of albuminuria, albumin being first discovered in the urine by Cotugno in 1770. Its relation to pregnancy was not noticed until 1818, when Blackall and Wells recorded the coincidence. Lever (1842) and J. Simpson (1845) held that the albuminuria caused the eclampsia. This theory has probably had a stronger hold upon the mind of the profession than any other, notwithstanding that it fails absolutely to explain many cases of eclampsia in which no albumin is found in the urine and where autopsy fails to demonstrate any disease of the kidneys.

The occurrence of albumin in the urine of pregnant women

is by no means uncommon. Galabin makes the remarkable statement that for forty years the urine of every pregnant woman examined in Guy's Hospital, with two exceptions, showed albumin. Frerichs (1851) followed with his theory, which made the retention of urea or its conversion into carbonate of ammonia the toxic factor. No chemist has yet been able to demonstrate enough of either substance in blood or tissues to cause eclampsia. Later the term "renal insufficiency" supplanted the above hypotheses and was used as a mantle to cover the symptoms which could not then be explained. Spiegelberg went to the extent of calling all cases of eclampsia, not uremic, cases of acute epilepsy. Pressure of the fetal head on the ureters (Löhlein), of the uterus on the ureters (Halbertsma), or pressure of the head upon the blood vessels (King), each failed to give satisfactory explanations and were proven wrong upon post-mortem examination; Löhlein was only able to demonstrate any dilatation in twenty-four per cent of ureters examined post mortem. The Traube-Rosenstein theory of cerebral anemia for a time was quite popular with the profession, until clinical evidence and autopsies proved it false. Strangely, the exact opposite condition of cerebral hyperemia, as well as the hydremia of pregnancy, have each been cited as the cause. Hergott believes that the convulsions may be produced from two different causes: first, by some kidney lesion which results in auto-infection; the convulsions in this case resemble true uremia. The second variety is caused by some special pathogenic microbe, or by the toxin produced by the microbe, which finds a suitable field for development in the organism as modified by pregnancy. In these cases the clinical course, temperature, and pathological lesions are those found in infectious diseases; the albuminuria is like that found in scarlatina and diphtheria. The older writers regarded eclampsia as a pure neurosis, and cited the great influence of pregnancy upon the nervous system, the increased nervous irritability, the element of fear in primiparae. When it became fashionable to ascribe all ills to microbes, it was only natural to search for the special microbe causing this trouble. Gerdes claims to have demonstrated and cultivated a specific microorganism of eclampsia. His conclusions are denied by Hofmeister, Haegler, Fehling, and Döderlein, who experimented with Gerdes' bacilli and pronounce it nothing but the proteus vulgaris, the bacterium of putrefaction. Dührssen claims blood intoxication as the most frequent cause of eclampsia,

ascribing the convulsions and coma to the deposit of creatin and creatinin in the motor centres of the brain.

A review of recent literature on the subject shows a tendency to ascribe the principal etiological factor to some form of blood poison. It may appear that the kidneys have had more than their share of attention, to the neglect of other organs. Thus Galabin states: "There is a very reasonable possibility that the kidney disease as well as the changes in the liver are the *result* of the poison in the blood, as are the convulsions and coma. The importance of albumin has been overrated; usually only the early stages of tubal nephritis are found, often nothing but congestion." Depaul states that in autopsies he has made the kidneys were perfectly healthy or simply congested. Barnes also remarks that the albuminuria often follows the eclampsia so quickly that the eclampsia seems to cause the albuminuria; and Playfair makes the positive statement that the convulsions are the cause of the nephritis; secondly, the convulsions and nephritis are produced by the same cause—*i.e.*, some detrimental ingredient circulating in the blood which irritates the cerebro-spinal system and other organs at the same time. Parvin certainly states a fact when he says: "Renal disease is not only very far from being a constant forerunner of puerperal convulsions, on the one hand, but its absence, on the other hand, is no certain proof that such convulsions will not occur." Doléris found in the blood of eclamptic patients a crystalline substance which caused death when injected into dogs and rats. Winckel also recognizes the possibility that the kidney disease, as well as the convulsions and coma, may be due to a pre-existing poison.

Strumpf has always been successful in finding acetone in the urine of eclamptic patients whose breath smelled strongly of acetone. A consideration of the part which acetone and allied bodies are supposed to play in diabetic coma caused him to examine the urine for sugar in every case where a sufficient quantity could be obtained, and he reports finding sugar every time. His deductions are that, under abnormal processes of decomposition, a substance free from nitrogen, toxic in action, acetone, or some body which resembles it and reacts to the same tests, is formed, which by excretion irritates the kidneys to such an extent that it leads to a nephritis, which has a destructive action on the coloring matter of the blood, greatly alters the activity of the liver cells, causes sugar to appear in the urine, produces destruction of the parenchyma of the

liver, which in time may go on to acute yellow atrophy with the formation of tyrosin and leucin, and induces convulsions and coma from irritation of the brain. He does not claim this explanation will suit all cases, nor is he decided whether this material is produced by an infection introduced into the body from without or whether it is transmitted from the child to the mother, the original idea being the production of acetone and the transmission of some poison from child to mother. We are not able to find reports of any other investigators following out Strumpf's theory and testing for acetone in the urine, though the investigations of Strumpf are mentioned by Jaggard and Parvin. The fact that not a single American text book on obstetrics pays any attention to acetone in eclampsia, and that no investigations in this country along that line seem to have been recorded; and, furthermore, the almost universal acceptance of renal insufficiency as the one great cause of eclampsia, is a sufficient apology for bringing the matter before the profession.

The history of the following cases is important because they were followed carefully at every stage, the patients being under direct observation all the time, and continuous chemical and microscopical examinations of the urine were made.

CASE I.—Mrs. A., age 30; primipara; of good family history; the youngest of eight children; had never been sick since childhood, except headaches at her menstrual periods; pregnancy was accompanied by complete and typical signs and symptoms (none were exaggerated). The patient continued about her household duties all the time. The urine was examined at frequent intervals (about once a week) for albumin, casts, sugar, and total solids excreted, with negative results as to albumin and sugar, the solids being either normal or slightly in excess; at no time did the total solids show any failure of elimination. At the seventh month the patient had an attack of severe gastric pain which was regarded as rheumatic in character and which promptly yielded to salicin. The urine did not contain albumin or casts. The bowels were regular throughout the entire pregnancy. No cholagogues or laxatives were given. At the eighth month—August 21st, 1896—the urine showed a trace of albumin; specific gravity 1014, amount fifty ounces. Patient was about her duties as usual and did not complain of any discomfort, nor was there any local edema. The patient was put upon a milk diet and given potassium citrate; the next morning the urine showed ten per cent albu-

min. no casts. She complained of pains in the muscles and of feeling tired, but continued about her duties. During the evening she was slightly irritable, but not more so than at many previous times after the exertions of the day. On retiring she took thirty grains of potassium citrate in lemonade. Her rest was disturbed; at 12 P.M. she vomited, and at 2 A.M., after slight retching, called to her husband, who found her in convulsions. She was at once given chloroform and thirty grains of chloral with sixty grains of sodium bromide by rectum, but she had four convulsions before she could be brought under the influence of the medicines. She rested fairly well until 11 A.M., uterine contractions commencing meanwhile and dilatation of the cervix progressing satisfactorily. Active cathartics had been administered and bile passed. Convulsions then recurred in spite of chloral and bromides. The skin was kept moist all the time by a hot-air bath, and hot fomentations applied to the back. The convulsions returning, followed by longer periods of coma, and the cervix being dilatable, the hand was introduced and dilatation completed, forceps applied, and a living child delivered. Ergot was given hypodermatically. During the few minutes occupied in dilating and delivery she had two convulsions, and after delivery three more convulsions in rapid succession. The coma was profound. At this time the condition of the patient was alarming. More chloral or chloroform could not be used without paralyzing the heart, and, the muscular twitchings denoting returning convulsions, morphine and strychnine were given, which appeared to control the twitchings but, if anything, increased the coma. At this time the heart began to fail, and respiration, which had been stertorous, became shallow; it seemed as if the patient must die from respiratory failure. For the next eight hours she was kept alive by repeated hypodermatic injections of strychnine, nitroglycerin, and digitalis, and at times by artificial respiration, rectal injections of whiskey and milk, much of which was not absorbed. Finally the respiration grew deeper, the pulse fuller; a little whiskey and milk was swallowed. Reaction was satisfactory in every way. Much milk was taken. The coma gradually disappeared, although intellection was much disturbed for three days. The bowels acted at frequent intervals, and urine passed in small quantities. The albumin increased in amount until the day following the convulsions, when it was one hundred per cent by bulk, with numerous hyaline casts, some blood corpuscles, and many epithelial cells.

Acetone was present in the urine in considerable quantity at this time, and its odor was also very plain in the breath, vomit, and in the feces. After the second day the inflammation subsided as rapidly as ever occurs in acute nephritis. The puerperium was marked by no complications, and recovery was rapid and complete.

CASE II.—Mrs. B., a healthy primipara, age 21. In this case the edema of the limbs began at the sixth month and gradually became more pronounced. We were called at about the eighth month, the patient complaining more of the pain in the limbs than of any other symptoms. Urine showed twenty-five per cent of albumin, some casts. The edema during the following nine days increased to an alarming degree, extending up the limbs on to the abdomen. The labia were distended to the point of bursting, each labium being as large as the closed fist. The distension was relieved by incisions. The urine for three days gave ninety to one hundred per cent albumin, quantity four ounces. During the nine days of treatment the bowels acted freely from laxatives, and the skin was kept in good condition with hot baths. The child was born alive, spontaneously, at the eighth month. In this case we had all the symptoms which would lead one to expect eclampsia—suppression of urine, albumin, casts—but instead of convulsions this woman had not a symptom of eclampsia, no headache at all, no vomiting, no epigastric pain, no trouble with her eyes, no nervousness.

In reviewing these two cases attention is directed to the apparent discrepancy between the histories and the teachings in regard to these cases. The occurrence of severe eclampsia in a woman where adequate renal insufficiency did not exist is noteworthy. The renal inflammation showing itself at the same time that the premonitory signs of poisoning appeared, and reaching its height after the cessation of eclampsia, and its rapid improvement subsequently, certainly indicate that the renal inflammation was secondary to, and caused by, the same poison that produced the eclampsia. That the bowels were sufficiently active in the first case does not indicate that the liver was likewise sufficiently active, and the inference that hepatic stimulants were not indicated is erroneous: while the second case, with a nephritis which was severe, and where there was evident renal insufficiency, but an active liver and no eclampsia, seems to show that the kidney disease is not the cause of the eclampsia, but a result of the elimination of a poison.

Some points in the physiology and pathology of the liver and kidneys during pregnancy are especially important. Leyden describes the kidney of pregnancy as being large and of a pale, anemic color ; microscopic examination shows the renal epithelium with fatty degeneration ; the urine contains albumin, cyclic in character, hyaline and granular casts ; all evidence of inflammation is absent and the interstitial connective tissue is intact. Tarnier and De Sinety declare the liver to be enlarged from a peculiar fatty degeneration of its cells, which begins around the intralobular veins and extends outward, which is the reverse of ordinary pathological fatty degeneration. Blot found glucose in the urine of fifty per cent of pregnant women to the amount of about one per cent ; the exact quantity seems to depend somewhat on the activity of the mammary glands ; in overdistension of the breasts the ingredients of the milk passed into the blood and milk sugar is found unchanged in the urine. Tarnier rejects this and ascribes the sugar to the hepatic changes incident to pregnancy. Normally the liver retains and partially destroys alkaloids and poisonous substances. In eclamptic patients marked changes in the liver occur, consisting first of dilatation of the capillaries, followed by necrotic points and infarct ; this may be accompanied by hemorrhage in the lungs or brain. By means of the portal vein a septic or chemical substance is brought from the intestines, or more likely from the uterus, to the liver, which, through fatty degeneration, vascular dilatation, and necrosis, has lost some of its purifying and eliminating power (Tibone).

We have certain facts that prove conclusively that in some cases the convulsions cannot be explained by any ordinary hypothesis, and in which the presence of acetone seems to be an index of the condition present. The finding of acetone in the urine and its presence in the feces, breath, and vomit of Case 1 led to an inquiry into the circumstances under which it may be produced. Acetone is a pyroacetic spirit of ether, a dimethylketone, C_3H_6O , specific gravity 0.792, vapor density 2.022, a colorless, inflammable liquid of an ethereal odor or the odor of chloral, of a sweet, pungent taste ; mixes with water, alcohol, and ether ; it is produced artificially by distillation of wood, tartaric and citric acid, or acetates, in the presence of lime, sugar, or carbohydrates. It is found in urine and blood in small quantities normally, and in large quantities in those suffering from abnormal decomposition of organized proteids. During the first twenty-four hours of starvation the

amount of acetone increased forty-eight times in the case of Cetti, the starvation artist. Its presence in leucocythemia, diabetes, inanition, and severe puerperal infection indicates that it is the result of katabolism of organized bodies, and not of the proteids ingested. Furthermore, it is proportional to this katabolism.

Considerable light is thrown on retrograde metamorphosis by the study of hepatic functions. It has long been known that retrograde nitrogenous change shows as an end product—urea—and that this transformation into urea is largely accomplished by the action of the liver cell. Interference with the elimination or conversion of these products shows itself in what we know as uremia and is best shown clinically in renal cirrhosis and acute nephritis. But this is only one side of katabolism. In the human bile there are cholic and fellic acids; taurin and glycocoll form compounds with these acids and the sodium salts which make up the greater part of the solids of the bile. Cholic and fellic acids are only found as products of hepatic activity; increase of proteid metabolism, or feeding with meat, gives increased solids to the bile. But the experiments of Feder show that the greater part of the nitrogen is eliminated from the body during the first fourteen hours, whereas the excretion of the non-nitrogenous moiety is more evenly distributed over twenty-four hours. It is then fairly concluded that the bile acids are formed from non-nitrogenous bodies in the non-nitrogenous moiety of proteid, sugar, or fat. A synthesis, then, is effected in the liver between these bile acids of carbohydrate origin and taurin and glycocoll of nitrogenous origin, and elimination is effected.

When we remember that the meconium of the fetus contains large amounts of biliary salts, and that these must be eliminated by means of the liver of the mother, it is not difficult to see that we may have an insufficient action on the part of the liver in elimination of non-nitrogenous products of retrograde metamorphosis, and that we may have hepatic insufficiency and a liver of pregnancy, analogous to renal insufficiency and the kidney of pregnancy. There is pathological ground for such a belief in the fatty degeneration described by Tarnier, the occurrence of acute yellow atrophy of the liver after eclampsia, and, in the case cited above, in the increased activity of the liver during three days following eclampsia and then the marked decrease.

As in uremia the cause of the convulsions and coma is not

due directly to urea, uric acid, or urinary solids collectively, but to the fact of these not being eliminated, but thrown back on the liver, and there, or in the blood, being further broken up and forming decomposition toxic products, so in these cases of eclampsia we have primarily the non-elimination of the products of retrograde carbohydrate metamorphosis, and these products undergoing further decomposition with development of convulsive poisons and acetone; and as the faulty action of the liver in not completely changing waste nitrogenous products into urea and allied bodies gives rise to bodies which irritate and inflame the kidneys in their elimination and cause further insufficiency of renal action, so here in non-nitrogenous elimination the waste products from the fetus in addition to those of the mother are sufficient to irritate the liver cell, with production of the peculiar fatty degeneration described, and when this irritation is sufficient to cause more or less complete non-elimination the waste products quickly accumulate and undergo those changes which result in eclamptic poison and acetone. This hypothesis certainly explains those cases which have been called uremic, and those cases where we have considerable kidney involvement without eclampsia, as in Case 2. Furthermore, it explains those cases of eclampsia where continuous search has failed to detect renal insufficiency, and where post-mortem examinations have demonstrated healthy kidneys. It also accounts for the clinical fact that the best results in treatment are obtained from hepatic stimulants and cholagogues; these are far more reliable than diuretics. Carl Braun has for his routine treatment a pill of aloes and colocynth, from which he reports unusually good results. Too frequently the physician obtains the idea from medical teachings that attention to the kidneys is *the* prophylactic method, and naturally infers that when he has done this he has performed his whole duty and that such attention to the kidneys is sufficient. Against such an inference this article is a firm protest, for, trusting to the fact of normal excretion of urinary solids and absence of albumin and casts, he may be rudely awakened from his fancied security by finding his patient in convulsions. The theory that eclampsia is primarily a renal disease in all cases is untenable. That it can be prevented by attention to the kidneys alone, or by the chemical and microscopical examination of the urine for albumin and casts alone, is also not true in all cases. It is necessary to look more carefully to all excretions and to all organs of the body,

especially the liver. The poison originates partly in the fetus; how else can we explain the cessation of convulsions after death of the fetus, even though retained in the uterus, or after delivery of the child? The uniform good effect on eclampsia of cholagogue cathartics, by relieving the portal circulation and removing large quantities of deleterious material from the circulation, would go to show that the liver, more than the kidneys, needs attention. The products of tissue changes of both fetus and mother are taken to the liver and are normally changed to urea and bile salts. In case the liver cannot fully accomplish the necessary changes, because of the great amount of waste product or constitutional inadequacy, it ceases its work because of overwork, and the poison of eclampsia accumulates. Those cases of eclampsia occurring during and shortly after labor are caused by the contractions of the uterus forcing the blood suddenly from the uterine sinuses, which are loaded with the result of tissue changes in the fetus, into the maternal circulation; and while the mother was able to eliminate sufficiently up to that time, this additional amount from the uterine veins is sufficient to precipitate eclampsia. In those cases where the kidneys are more or less inflamed, attention to the liver will compensate, in a remarkable degree, for the renal insufficiency. The nephritis which so frequently attends eclampsia is mainly secondary and is analogous to the nephritis of scarlatina. Inasmuch as the systematic examination for acetone has never been made, its exact relation to eclampsia and its prognostic importance have not been determined. Its relation to tissue changes is such that no examination of the urine of pregnant women is complete without an examination for acetone.

APPENDICITIS COMPLICATING PREGNANCY.¹

BY

R. ABRAHAMS, M.D.,

District Physician to the Mount Sinai Hospital,
New York.

It may safely be said that few if any diseases have received such universal attention as appendicitis. The pediatricist, the gynecologist, the surgeon, and the general practitioner, either

¹ Read before the New York County Medical Association, November 16th, 1896.

unitedly or individually, devoted time and energy to the study of this grave affection in all its various phases and manifestations; and since it was pointed out that appendicitis invades the pregnant woman, the obstetrician was added to the list of its students. The frequent occurrence of the disease, together with its serious consequences, created a watchfulness and an apprehension in the minds of the laity to the extent that not infrequently, on the strength of a pain in the stomach or side, a diagnosis of appendicitis is made by the patient long before the physician is consulted. But if appendicitis in general merits so much attention, how much more consideration should be bestowed on it in its relation to pregnancy; for here, instead of one, the lives of two human beings are involved in the process. This being the case, I need hardly apologize for inviting your earnest attention to this important subject.

Up to a short time ago the subject of appendicitis in pregnancy was, but for the brief report of one case, unknown to medical literature. I am sure no practitioner could have questioned its probable occurrence, yet it occurred to none to look for it. The everlasting credit is due to our eminent gynecologist, Paul F. Mundé, for introducing in his matchless way this grave accident of pregnancy to the appreciative medical fraternity. The novelty of the complication, the graphic description and excellent results of the first reported case, set the ball a-rolling with an impetus that roused every physician's interest in this new subject. It is not quite two years since that celebrated case was put on record; to-day there is quite a literature of appendicitis in pregnancy, and physicians everywhere are aware of the occurrence and take pains to detect it.

It has seemed proper to me to review the reported cases up to date before I report my new ones and before I enter into the important consideration of the pathology, etiology, diagnosis, prognosis, and treatment.

CASE I. (Mundé¹).—Mrs. F. P.; eight months pregnant. On September 15th she was seized “with pain and tenderness in the lower part of the abdomen, equally severe in the median line and on both sides.” Temperature 101° to 102° F. On the 20th the temperature fell to 99° and the patient was expected to sit up the next day. On the 21st, about 9 A.M., she suffered an attack of violent pain in the pelvic region, accompanied by a pronounced chill and fever, temperature going up to 101.5° F., while at the same time labor set in and kept up. On the 22d,

about 2:30 A.M., a dead child was naturally delivered. The birth of the child was followed by "semi-delirium and prostration." The abdomen still continued universally tender. Twelve hours after delivery "decided dulness could readily be made out, together with a very acute pain on pressure in the right iliac region, the outlines of the uterus being free"; vaginal examination negative, now the pain was localized. Temperature 102°, pulse 120. Diagnosis: Perforative appendicitis. On the 24th and 25th the temperature was nearly normal. On the 26th the temperature jumped up to 102°; temperature on the 27th, 101.8° F. On the 28th operation was done. Abscess found and completely closed by a thick wall of agglutinated intestines. Recovery.

CASE II. (Mundé³).—Mrs. H. S.; multipara; gives a decided history of appendicitis in the past. On September 30th, 1895, she was confined by a midwife of a dead anencephalic fetus at term. The placenta was adherent to the right cornu of the uterus, but was completely removed. Two days after—namely, October 2d—retching and vomiting was incessant, pulse 63, dicrotic, temperature and respiration normal. No signs of collapse. Vaginal examination negative. Pain in the right iliac fossa. Careful treatment improved the patient's condition up to the 5th, when the previous tympanites returned, temperature went up to 101° and pulse to 112. No decided dulness or resistance on the right side. Lochia offensive. On the 6th of October operation was performed. The appendix was found perforated. The general peritoneal cavity was shut out by the adherent intestines. Death occurred three days after operation.

CASE III. (Mundé³).—I referred this case to Dr. Mundé's service at the Mount Sinai Hospital March 17th. The patient was five months pregnant, confined to bed for five days, running a variable temperature from 102° to 103° F. morning and evening, suffering excruciating pain in the right iliac fossa. Previous history good except for troublesome constipation. Slight dulness on percussing the appendiceal area. When admitted to the hospital temperature fell to normal. "The day after admission, however, the temperature increased to 102.8° F., pulse 120; pain in the right iliac region intense; general tympanites. Examination under chloroform revealed distinct dulness and an abscess tumor in the right iliac region. Operation. A large amount of fetid pus was evacuated from a cavity which was partly closed by adhesion of the intestine. The appendix

was not found." Patient died twelve hours after operation.

CASE IV. (Abrahams').—Mrs. X. About the ninth week of pregnancy patient began to feel pain in the right iliac region—a history of long constipation preceded this. The pain continued for three days, when she miscarried. This event afforded her relief for one day. Thereafter the pain returned and continued in the same place with increasing severity. The patient was seen eight days after abortion and eleven days after the occurrence of the pain. At this time she was admitted to the hospital. Dr. Mundé operated and found "a big appendiceal abscess, ill-smelling pus, gangrenous appendix, and agglutinated intestines." The patient died.

CASE V. (Frederick H. Wiggin').—Mrs. A. V.; married; age 25; habitually constipated; pregnant three months. Was seen for the first time on July 21st, 1889. At this time the chief complaint was nausea. On the 24th the temperature was 99°, pulse 100; bowels moved. "On the 27th nausea continued, and for the first time patient complained of pain at McBurney's point. No tumor could be made out, and the pain was not increased on pressure; temperature 100° F., pulse 106. Diagnosis: Appendicitis. On the 28th the patient had had a fairly comfortable night. Pain at McBurney's point had disappeared and was now complained of over the left ovary. No tumor or dullness on percussion could be made out. There was some slight distension over the abdomen and the muscles were somewhat rigid. During the afternoon the patient had another chill, and when seen an hour later the temperature was 103° F. and pulse 126. Perforation of the appendix was suspected. Operation refused. Death occurred on the 31st. The autopsy confirmed both pregnancy and gangrenous appendicitis.

CASE VI. (L. L. McArthur').—Mrs. M. C. R., age 31; married; multipara; pregnant four and a half months. Was admitted to St. Luke's Hospital (Chicago) Friday, January 19th, 1894. She was seized with intense pain, intermittent in character, in the right iliac region early Wednesday morning, accompanied by painful vomiting and soon followed by chill and fever. The bowels failed to move by enemata. Her suffering continued Thursday and Friday, the temperature ranging between 101° and 103° F. On admission to the hospital pulse 120, small, wiry, and weak; temperature 103° F.; respiration 38; expression anxious and pinched; skin hot; extremities cold; abdomen prominent, not tympanitic; uterus

enlarged, extending to the umbilicus; abdominal walls tense, with flatness on percussion over the right iliac area; exquisite tenderness with sense of tumefaction existing over this region; no vaginal discharge; cervix soft and somewhat patulous; tenderness without marked bulging in the right vaginal vault. Diagnosis: Appendiceal abscess or ruptured tubal pregnancy, probably the former. Operation. Large abscess, the peritoneum and uterus respectively forming the anterior and inner walls of the abscess. Appendix gangrenous. Abortion and death of the fetus followed the next morning. Death occurred on the second day after operation.

CASE VII. (McArthur⁷).—Mrs. Theresa B., age 34; IIIpara; between four and five months pregnant. Admitted to hospital October 11th, 1894. Previous history good. Took sick three weeks ago with "pain, vomiting, and fever. Pain colicky in right inguinal and iliac region. Temperature 99.2° F., pulse 112, respiration 26. Tumor in the right iliac region about the size of a fist. Upon vaginal examination a tumor could be felt in right vaginal vault, which was tender and continuous with the tender tumor in the right iliac area. Uterus normally posed. Diagnosis: Abscess. Operation. Stinking pus escaped; appendix was found in an agglutinated mass of intestines forming an apparent protection from the general peritoneal cavity. The right uterine wall formed the inner part of the abscess wall. Patient miscarried. Died.

CASE VIII. (Archibald C. Harrison⁸).—Mrs. S., multipara; five months pregnant. After taking "a large dose of pills," which purged her liberally, began to feel pain in the right iliac region and was somewhat feverish. On the 14th the doctor found the abdomen "tympanitic and very tender." On the 15th induration and pain in the right iliac fossa; no fever. On the 16th patient had another chill and pain over the abdomen; vomiting incessant. Labor began; temperature rose to 107° F. Fetus was delivered on the morning of the 17th. Grave symptoms promptly subsided. On the 21st fever and pain again. On the 22d operation was done; appendiceal abscess found. Patient recovered.

CASE IX. (J. W. Thomason⁹).—Woman about 20; nine months pregnant. On April 3d complained of sudden pain in the right side of the abdomen and constipation. Vomited during the night. On the 4th temperature rose to 104° F., pulse 132; pain excessive over appendiceal region. Tumor could not be felt; vaginal examination negative. Diagnosis:

Appendicitis. From the 4th to the 8th the temperature varied between normal and 102° F.; pulse always out of proportion to the temperature. Pain over the appendix continued. At 1:30 A.M. on the 8th of April the temperature fell to 96° , pulse to 90, and patient felt better. The patient continued well for a period of twenty-two days, although she still complained of pain in the right iliac fossa. On the 30th labor set in; delivery was unaided. The placenta was attached to the right side of the uterus; it was somewhat inflamed and presented calcareous degeneration. The patient's temperature was 102° F. after delivery, but it shortly disappeared. The reporter of this case states that a few weeks ago (writing in September, 1895) an examination revealed tenderness in the right iliac region. The doctor wavers in the diagnosis, thinking that the train of symptoms described might have been due to an inflammation of the placenta, but the very fact of the existence of lingering pain in the right iliac fossa is sufficient to stamp the case as one of appendicitis.

CASE X. (Howard Crutcher¹⁰).—Young woman, unmarried, was seized with abdominal pain and vomiting. History of constipation. "On July 18th, two days after the attack, a two months' fetus was expelled. Uterus curetted and packed; abdominal pain and constipation continued." Pulse 160, temperature 102.5° F. Operation was performed after long delay. Appendix found gangrenous and attached to the fundus of the uterus. Large quantity of foul pus discharged. At autopsy uterus was found normal.

CASE XI. (Hirst¹¹).—Mrs. —, four and a half months pregnant, was seized with violent, unaccountable pain. The abdomen was tender, distended; temperature 101° F., pulse rapid. Next morning was worse. In the afternoon she was operated on. "A large quantity of thin pus ran out when the peritoneum was opened." This was a case of "typical suppurative peritonitis" due to a diseased appendix. This woman made a good recovery. She carried to full term and was delivered of a healthy child.

I shall now add four new cases of undoubted appendicitis in pregnancy. The interest attached to these four instances of the disease lies in the fact that the mothers as well as the children escaped untimely death.

CASE XII.—This case occurred in the practice of Dr. S. Schaie, of this city, to whom I am indebted for the report. Mrs. B., 24 years old; mother of one child. From time to time

during gestation the patient complained of pain in the lower right side of the abdomen. Examination revealed nothing tangible to account for the pain. Bowels were kept open either naturally or by aid of mild cathartics. Toward the end of the seventh month of pregnancy the pain was more annoying, especially so when the child kicked up in the direction of the right iliac region. On October 1st, 1895, the temperature rose to 100.5° F., pulse 84; pain over McBurney's point, and a small area of dulness, distinct from that of the uterine tumor, could for the first time be felt. Through the application of ice and administration of opium the pain, swelling, and temperature which never rose higher than that mentioned, all gradually disappeared. On October 20th labor set in; delivery was natural, the period of gestation having been seven and a half months. The child lived six days; its death was due to lack of care and lack of nourishment. There was no recurrence of the pain, either immediately after delivery or at any time since then. Diagnosis: Catarrhal appendicitis.

CASE XIII.—Mrs. L., age 42; previous history good; pregnant for the fifteenth time; suffers from habitual constipation. During her last pregnancy, just about the end of the seventh month, she was seized with a sharp, lancinating pain in the right iliac region, radiating to the left side of the abdomen. Vomiting occurred twice during the first hour. Twelve hours after this attack the pain was decidedly localized at the right iliac fossa. Temperature 100.5° F., pulse 90. The next day the temperature and pulse remained the same; bowels moved considerably after calomel, salts, and enema. The temperature, pulse, and pain continued nine days; on the tenth day the severity of the pain became less, while pulse and temperature were reduced to normal. While the appendiceal area was tender and painful, yet no dulness or tumefaction could be made out on the most careful examination. Diagnosis: Catarrhal appendicitis. The patient was delivered at full term of a living child; the placenta was normal in appearance, normal in delivery, and the puerperal period was, to use the conventional phrase, "uneventful." That the diagnosis of appendicitis was justified is shown by the fact that since her last confinement, six months ago, I treated the woman twice for recurrent attacks of the same trouble. During each recurrence the temperature was very slightly elevated and the pulse very little accelerated; dulness and tumefaction were absent. The woman stubbornly refuses operation, but I am afraid that when she gets in the

family way for the sixteenth time her consent to it may not be considered necessary.

CASE XIV.—This patient was under my out-door hospital (Mount Sinai) treatment. A woman about 40, five months pregnant; habitual constipate, otherwise her health was good. Was seized with general abdominal pain, vomiting; temperature 100° F., pulse 90. In twenty-four hours the pain became localized in the right iliac fossa. For seven days the temperature varied within a fraction of the initial degree, the pulse remained good, full, and 90. No tumefaction, but most exquisite tenderness in the appendiceal region. An enema for the constipation and an ice bag for the pain constituted the therapeutic measures. On the eighth day her temperature rose to 102° and pulse ran up to 110, somewhat weak. Slight dulness was perceptible on percussion, and by turning the patient on her left, so as to tilt the pregnant uterus to that side to give me a clearer field for examination, I could detect resistance over the appendix. At this time she was sent to Mount Sinai Hospital with the diagnosis of appendicitis. The diagnosis was concurred in by Drs. Brettauer and Lilienthal, attending gynecologist and surgeon respectively. Operation was decided upon, but shortly after the temperature went down to normal, and in a week the patient was discharged "cured." This patient escaped my further observation.

CASE XV.—Mrs. K., 26 years old; multipara; previous history good; more or less bothered with constipation; just entered the ninth month of pregnancy. On or about the 18th of September, 1896, she found herself vigorously engaged in a tenement-house brawl. An hour after the encounter her condition was as follows: A good-sized hematoma on the scalp; bruised and contused in body, limbs, and optical territories; her temperature in the axilla 106° F., pulse 120; half-unconscious, with twitchings of the muscles of the face and hands. Twelve hours later she felt like her former self, but complained of pain in the right iliac fossa; evidence of external injury corresponding to that region was in the form of a blue mark. The pain was quite intense on pressure. Temperature and pulse normal. On the 26th I delivered her of a healthy boy. There was no difficulty in removing the placenta. Her condition was excellent up to the fifth day of the puerperium. She still, however, complained of pain in the same place. On the fifth day she suddenly developed intense, diffuse abdominal pain, pulse grew rapid and feeble, temperature 104° F., vomited once, face

pinched and anxious, cold feet, and skin covered with clammy perspiration. After administering strychnine and morphine under the skin she grew quiet, pulse improved, and the pain was somewhat less severe; the temperature went down to 102° F. The next day she presented a picture of collapse; although she was half-unconscious, yet the slightest pressure on the abdomen was sufficient to rouse her from her stupor. The abdomen was not tympanitic, it was not tense, and while the tenderness was universal it was most severe on the appendiceal area. Vaginal and rectal examination failed to show anything abnormal. I regarded the case as appendicitis of traumatic origin. The temperature was still 102° F. and the pulse of excellent quality, 90 to the minute. I could hardly reconcile the patient's appearance with the existing symptoms. I thereupon decided to call in Dr. Mundé. The doctor kindly saw her in the evening. She still looked collapsed, the pulse and temperature the same as in the morning. After a most careful and painstaking examination my distinguished consultant indorsed the probable existence of appendicitis, but counselled against operative measures until further developments. For two days more her condition remained the same, particularly with reference to the diffuse abdominal pain and tenderness in the right iliac fossa. Thereafter she gradually grew brighter, until she completely recovered full consciousness. In a day the diffuse pain disappeared, but the tenderness over the appendix remained as acute as ever. This painful area existed for eight days longer, with the same temperature and the same pulse. Twelve to thirteen days after the onset of the attack the temperature and pulse were abruptly reduced to normal; the tenderness was also reduced, but not entirely. I examined the patient, during her illness, twice a day with the hope of discovering more than pain over the appendix, but more than slight dulness I could not find. Other features which the disease was characterized by were the following ones: Very heavily coated tongue, fetid breath, accelerated breathing (26 to 30 per minute), nausea, anorexia, uncontrollable diarrhea after ten grains of calomel, salt, and enema; lungs, heart, kidneys, and bladder normal. Treatment consisted in the continuous application of ice to the right iliac fossa and good nourishment. The child died on the eighth day with symptoms indicating profound septicemia, although no source of sepsis was discovered.

A few days ago the patient was in my office to pay her prac-

tical tribute to the art and science of medicine, but she was still complaining of pain "at the old stand."¹

Bearing in mind the different clinical pictures of appendicitis in pregnancy which I had the pleasure of portraying, I beg leave to invite your further attention to a consideration of the other features of the subject.

Pathology.—There is no reason to presume that the appendix vermiformis in a pregnant woman should be governed by pathological laws and processes different from those in man or child. One feature, however, which may be designated as anatomico-pathological, must be prominently mentioned. This is graphically illustrated by Cases 6 and 7. I refer to that peculiar and unfortunate condition in which the uterus forms one of the walls of the abscess. For if you stop to think that the great and only safeguard, in case of suppurative appendicitis, against general septic and fatal peritonitis are the surrounding walls of inflammatory adhesions, which walls effectually prevent the escape of pus into the peritoneal cavity; and if you stop to observe how zealously the surgeon aims to preserve the integrity of the walls, you will readily appreciate what a grave feature is added to the deplorable situation when the contracting and enlarging gravid uterus, with the restless denizen within it, is one of the walls of the abscess. For whether the inevitable abortion or miscarriage occurs before or after the operation for appendicitis, the uterine contraction resulting from the process of labor is sure to break the welcome adhesion and allow the pus free escape into the peritoneal cavity.

Etiology.—As to the etiology of appendicitis in pregnancy, it must be the same as when the affection occurs in man or unimpregnated woman, with which you are all undoubtedly familiar. One point, however, I would venture to impress on your minds, which perhaps you have already gleaned from the long recital of all the recorded and unrecorded cases embodied in this paper—namely, that, with one unstated exception, all the pregnant victims of appendicitis gave a history of long, distressing, and obstinate constipation. As there was no other abnormal condition which could be considered a factor in the causation of the disease, it would be reasonable to infer that the constipation was the essential cause. If this inference be permissible, then the practical lesson to be learned from it is self evident—viz., insist that the pregnant client keep her

¹ The same patient suffered a recurrent attack, lasting a few days, since this paper was written.

bowels in perfectly good working order. Just as the careful physician inquires into the action of the kidneys during the pregnant state and quickly corrects any deviation from the normal function, so must he be on the alert regarding the healthy performance of the alimentary tract, removing especially all causes leading to torpidity of the bowels. Constipation is very frequent among women, and pregnancy promotes or creates the habit, hence the imperative necessity of watchfulness.

Apropos I would like to state that I am not prepared to subscribe to the prevailing belief that appendicitis is less frequent in woman than in man. My observation would lead me to assume that the frequency is the same or possibly greater among women. I can easily imagine that more than one woman harbors within her abdomen a diseased appendix vermiformis while she receives treatment for salpingitis, ovaritis, and a dozen other "itis," and thus the mistake in the statistics arises.

Diagnosis.—The diagnosis of appendicitis in pregnancy, unlike that of appendicitis in general, is attended by more than one obstacle. The presence of a uterine tumor, small or large, filling the pelvic or abdominal cavity; the fact that the abdominal walls in pregnancy are on the stretch, lacking the softness and pliability so essential in the examination of the abdominal contents—these are sufficient to interfere with the usual physical signs obtained from percussion and palpation of the suspected area. You must have been forcibly impressed with the almost uniform absence of dulness and flatness, tumefaction or tangible outlines of appendiceal tumors, in all the cases, which either operation or autopsy demonstrated to have been present. For all that, a little attention and sufficient presence of mind will enable the examiner to arrive at a correct diagnosis.

All the cases herein recorded show a certain uniformity in the symptomatology, differing only in the severity of its expression. First, there was the history of constipation; second, the sudden onset of acute abdominal pain, especially severe in the right iliac fossa; third, the subsidence of the diffuse pain and its localization over the region of the appendix; fourth, vomiting; fifth, rise in temperature and acceleration of pulse; sixth, save in one case, the negative result of a vaginal examination. Under ordinary circumstances an array of symptoms such as this would undeniably point toward appendicitis, and there is no reason to think that the same clinical picture, added to a negative vaginal examination, presented by a preg-

nant woman, should not warrant the diagnosis of the same disease. In closing my remarks on diagnosis I would like to allude to one more important point—namely, in all doubtful cases, in all obscure cases, it would be highly advantageous (it was done in Case 3) to examine the patient under anesthesia. This procedure is clearly indicated. Suppose an appendiceal abscess or other operable condition is revealed during the examination, the same anesthesia could be continued to serve for the operation. A parallel plan is advised in case of strangulated hernia where taxis is first to be employed, and, when failure attends the attempt, the anesthesia is prolonged and the surgeon proceeds. On the other hand, should the examination under anesthesia reveal nothing abnormal no harm will have been done by it.

Differential Diagnosis.—It may be worth our while to stop and consider other pathological conditions in the female pelvis or abdomen existing during pregnancy for which appendicitis might be mistaken, and how to differentiate them.

I. Right tubal pregnancy. Inasmuch as the utmost duration of tubal pregnancy before rupture is four months, it is self-evident that appendicitis in an ordinary pregnancy beyond this period could not even be thought of as an instance of extra-uterine fetation. The mistake, therefore, can only arise when the complication occurs in the first three or four months, or when the pregnant uterus still occupies the pelvic cavity. The symptoms of appendicitis in pregnancy which would by their existence simulate or suggest right tubal pregnancy are the following: Subjective signs of gestation, as nausea, morning sickness, pain in the breast, etc.; enlarged uterus, soft cervix, vomiting, and colicky pain in the right side of the pelvic cavity. Then, at the time of rupture of the tube, the patient is attacked by a sudden, sharp, lancinating pain confined mainly to the right side of the abdomen, and, just as in gangrenous appendicitis, the rupture may be followed by peritonitis.

The absence of the following symptoms would at once exclude extrauterine pregnancy: 1. A history of sterility. 2. Irregular menstruation. 3. The skipping of one menstrual period. 4. Escape of decidual membrane. 5. Constitutional evidence of internal hemorrhage, as sudden pallor, thin rapid pulse, subnormal temperature, and a few other well-known symptoms resulting from hemorrhage.

With reference to the value of physical signs obtained from a vaginal examination, in the shape of enlarged tube (before

rupture) or a hematoma or hematocele (after rupture), while there is no question as to the importance of such symptoms, yet I would remind you of Case 7, in which a doughy tumor was found above the vaginal vault and which proved to be a continuation of the appendiceal abscess.

II. Second in order of differentiation comes salpingitis, pyosalpinx, or oöphoritis. Again these diseases can only be mistaken for appendicitis when it complicates early pregnancy. My time does not permit me to enter into a full discussion of the differential diagnosis. One point, however, I wish to remind you of—namely, an inflammation of the female pelvic organs is almost always the result of sepsis, so that if an undoubted history of infection, specific or otherwise, is present the differential diagnosis is rendered quite easy.

A subject worthy of careful study, but yet foreign to the aim and object of this paper, is the relation appendicitis in the unimpregnated woman bears to the inflammatory diseases of the right tube and ovary. As all general practitioners are practising minor, and some both minor and major, gynecology, I am sure the unique case which I wish to relate will elicit from them the deepest interest. The case was in Dr. Mundé's service at the Mount Sinai Hospital. I am indebted to Dr. Mundé for the permission to mention it here.

A. S. was admitted to the hospital September 26th, 1896. For six months had pain in the lower abdominal regions. On admission temperature 99.6° F., pulse 88, respiration 24. For several months she passed water very frequently; urine often very cloudy and offensive. One month ago passed some clots of blood in the urine. Must strain very much in order to empty the bladder. Has great pain before and during menstruation. Bowels constipated. Since two months troubled with prolapse of rectum. Three-weekly type of menstruation; duration one day, amount very small. On the 30th of September Dr. Mundé operated on her for the prolapse of the rectum, and on the 13th of October the patient was out of bed. October 18th she complained of intense general abdominal pain, more marked at the right side; temperature normal. October 19th, 6 A.M., temperature 102° F.; examined under anesthesia; resistance found in the right iliac fossa; ice bag applied. October 20th, vomited; temperature 102.6°; after the bowels had been moved by calomel and salts the temperature went down to 99°. The temperature rose again; the resistance became demonstrable, so that a diagnosis of appendicitis was made. Operation by Dr. Mundé.

Usual incision for appendicitis was made. Peritoneum opened. A large tumor, the size of an orange, was exposed, lying in the free abdominal cavity. Aspirated; pus withdrawn. The tumor proved to be a large ovarian abscess. Upon further examination another tumor (intraligamentous) was felt on the left side, but could not be removed through this wound. Median laparotomy was done after closing the latter. The tumor, which was easily removed, proved to be an intraligamentous ovarian abscess.

Within the last year I treated two women, one six months, the other eight months pregnant, both of whom showed apparent signs of appendicitis. The first complained of a constant dull pain, at first in the right hypochondriac region, later in the right iliac region. A tumor distinct from the pregnant uterus could easily be made out. Everything else about the patient was normal. After delivery the pain, with the tumor, moved up near the edge of the liver. The tumor was a floating kidney. This patient was seen by Dr. Gerster, the diagnosis confirmed. The other woman suffered most excruciating pain in the right iliac fossa, radiating down to the pelvis. No signs of a tumor; temperature very slightly raised; bowels moved with difficulty; pain in passing urine. On the eighth day she passed a stone the size of a hazelnut, together with a considerable amount of gravel.

I mention these two cases for the sake of completeness. In both a provisional diagnosis of catarrhal appendicitis was made, but time and patience corrected the error.

Typhoid fever is the last disease which will be taken into consideration with regard to a differential diagnosis. This affection was considered in and excluded from several of the cases herein reported. In case of appendicitis in pregnancy in which there is an absence of dulness over the appendiceal area, in which there is some tympanites, abdominal pain, pain over the ileus, steadily increasing temperature, and loose bowels (Case 15), and if all these symptoms continue undiminished for five or six days, the temptation to diagnose typhoid fever is very great indeed. But a little thinking will exclude it. The prodroma of typhoid is absent in appendicitis. In typhoid there is no sudden onset of acute abdominal pain. The symptoms characterizing the first week of typhoid—namely, headache, vertigo, apathy, epistaxis, pharyngitis, frequent stools resembling pea soup, sometimes bloody stools—all of these are conspicuously absent in appendicitis. The typhoid symptoms of the second

week are still more illustrative to exclude it.¹ Finally, I may be allowed to cite a case which was cited by McArthur, of Chicago, with the object of demonstrating the difficulty which may occasionally arise in the diagnosis of the subject in question:

"A young woman, aged 23, unipara, of good family history, who was four and a half months pregnant complicated by cystitis, suddenly developed, after a long railway journey, a temperature of 105° with general pain and vomiting. The pain after a day became localized in the right iliac area. The pain continued for a week. The temperature varied between 103° and 105°. Her condition on the eighth day was as follows: Temperature 105.3°. The uterus reached umbilicus and was not easily movable laterally. The right iliac area was flat on percussion throughout from umbilicus to spine and from Poupart's ligament to the uterine body. Distinct tumefaction could be felt, but could not be clearly defined from the uterus. Great tenderness on palpation. No tumefaction in vaginal vault. Rectal examination negative. Typhoid and rheumatism were excluded. There was a possibility of pyosalpinx (?)," although a diagnosis of appendicitis was made by more than one competent physician. "An incision was made and a normal appendix and a normal tube were found." The next day there was an abortion of a macerated fetus. The doctor regarded this case as one in which pregnancy occurred in the right cornu of the uterus, causing sacculation of the uterus, the right side filling out the entire iliac fossa. The constitutional symptoms were attributed to the long railway journey.

Prognosis.—The prognosis must be considered from the standpoint of both mother and child. The limited number of cases thus far reported does not yet warrant fixed or general prognostic conclusions. I shall simply give you data and ask you to draw your own inferences.

With reference to the mother, there is the melancholy picture of seven deaths out of a total of ten suppurative cases, or a mortality of 70 per cent; all but one were operated on. All the instances of catarrhal appendicitis recovered, or the mortality is *nil*. On the other hand, taking all the cases considered, eight of the fifteen recovered and seven died, a mortality of 46⅔ per cent. Either way you shift the facts the situation

¹ Evidence attesting the value of Widal's blood test for the diagnosis of typhoid fever is rapidly accumulating. Should it become pathognomonic its importance in the differential diagnosis between typhoid fever and appendicitis in pregnancy or otherwise needs no emphasis.

remains pretty gloomy. As to the children, only one child in all the operative cases survived; all the rest perished either before or after operation or never saw the light at all. In the catarrhal cases, with the exception of one which disappeared from observation, only one child lived; the remaining two died a few days after birth from causes probably relating to the maternal affection—to put it numerically, the children's mortality is $85\frac{1}{2}$ per cent.

Treatment.—In the discussion of this final topic of the paper I must necessarily confine myself to the methods of treatment employed in the reported cases. Yet I ask your kind indulgence should the drift of the argument tempt me to draw comparisons between general appendicitis and as it occurs in pregnancy.

The treatment adopted in all the recorded instances of the complication was both surgical and medical. In all the operative cases the treatment was for some time, perhaps too long, purely medical or symptomatic. With the exception of one mild catarrhal case (12) which received the opium treatment, all the rest were treated with salines and the ice bag (Cases 13, 14, 15). From the data and the results alluded to in my remarks on prognosis, you might apparently be justified in concluding that drugs are superior to cutting. Such a conclusion, unaccompanied by a careful analysis of the histories of all the cases, if adopted as a trustworthy guide in the management of future cases of appendicitis complicating gestation, would indeed be a calamity to the patients and an assault on sober judgment. I ask you to bear in mind two facts which, in my humble opinion, are responsible for the disastrously large mortality. First and foremost, all the fatal cases were submitted to the surgeon at a time when the disease had already advanced far enough to place them beyond the ken of the knife. Second, the disease not having been previously observed, the attendants, surgeons or physicians, failed to realize its gravity sufficiently early to apply the proper means to cure it. There is not a more cogent argument to support this explanation for the terrible mortality than that furnished by the unique case of diffuse septic peritonitis due to gangrenous appendicitis operated and reported by Hirst, of Philadelphia. In that case the diagnosis and operation were made “bright and early,” and the result speaks for itself: the mother recovered, the child carried to full term and born healthy. Delayed interference means a mortality of 70 per cent; early interference, as is attested by the statements of many authorities, means a mor-

talities of a fraction of a per cent. A physician must be beyond redemption if these facts and figures do not move him to adopt the view that appendicitis is a surgical disease and its treatment is early operation. The pregnant woman who suffers with acute appendicitis should, unless the affection runs an extremely mild course with the pregnancy very near term, be regarded from the very inception of the attack a subject for the table and the knife. As a practitioner who knows his mind would not allow a woman with an extrauterine pregnancy to walk about without having urgently counselled her to submit to operation, although a sporadic case here and there does escape, so should his attitude be toward his pregnant patient who suffers with acute appendicitis, as both of these are treacherous diseases. The two are like a package of dynamite in the pocket, always ready to explode and destroy at slight provocation and without warning. Mundé's dictum is, "Treat the disease early, regardless of pregnancy"—a safe rule for everybody to follow.

Now as to the question of "when shall the operation be done and what are the indications for doing it?" Believing, as I do, that the rules which apply to appendicitis in general hold good in appendicitis in pregnancy, I propose to recapitulate the rules of guidance laid down by Willy Meyer, with one or two others as the result of personal observation. They are substantially as follows:

1. Operate early, within twelve hours, in acute perforative appendicitis.

2. Take the pulse as your guide; a quick, rapid pulse (116-120 beats to the minute) is an indication for operation. This indication was well exemplified by several of the cases herein reported. I should add that not only should the pulse be rapid, but it should also be out of proportion to the accompanying temperature. This, too, was well shown in the cases mentioned.

3. In case of doubt the operation is better than waiting. If an abscess is found the effort is well rewarded; if not, the conscience is clear and the woman is none the worse for it. The fear of interrupting gestation by an exploratory incision is counteracted by the accumulated instances on record in which pregnant uteri were operated on, cauterized, where ovarian and other pelvic tumors were removed, and yet pregnancy remained undisturbed.

4. Another strong indication for operation which I observed in my own cases, and which an analysis of other cases seems

to confirm, is this : namely, a sudden lull, and in ten or twelve hours a sudden recurrence of all the symptoms.

5. The fifth and last indication is a recurrent attack of an old appendicitis occurring during pregnancy.¹ The operation should be done even if the attack is ever so mild, and especially when it takes place in the early months of gestation. The laparotomy then is easy, aseptic, and removes the possibility of future attacks probably occurring late in pregnancy when the procedure will not be so easy and safe.

If some of my country brethren, who mostly raise the hue and cry against operation, should say, "All that talk about operation is fine exercise for you city doctors, who have well-equipped hospitals, skilful and willing operators, but what shall we do, away from hospitals and ready help?" the answer is—a sigh! The want of good hospitals and good surgeons, however, should not blind them to the fact that the early removal of a diseased appendix is infinitely preferable to the method of treating it with hope and opium until the pus providentially escapes through the rectum, bladder, or mouth. The want of antitoxin does not invalidate its curative properties in diphtheria; the difficulty and impracticability in private practice of carrying out, at times, the Brandt treatment in typhoid fever would be no excuse for condemning it. And as to those practitioners, in the city or in the country, who filially hang on to the apron strings of the good, kind, and thoughtful Mother Nature rather than to the art and science of surgery, I have a nice little anecdote to relate which I read in Huxley's essay on "Social Diseases." He says: "I was once talking with a very eminent physician, the late Sir W. Gull, about the *vis medicatrix nature*. 'Stuff!' said he. 'Nine times out of ten Nature does not want to cure the man: she wants to put him in the coffin.'"

156 CLINTON STREET.

REFERENCES.

1. MUNDÉ: New York Medical Record, December 1st, 1894, p. 678.
2. MUNDÉ: New York Medical Record, October 26th, 1895, p. 609.
3. MUNDÉ: New York Medical Record, March 23d, 1895, p. 379.
4. ABRAHAMS: New York Medical Record, January 5th, 1895, p. 28.
5. FREDERICK H. WIGGIN: New York Medical Record, January 23d, 1892, p. 109.

¹ Dr. A. G. Gerster (oral communication) operated successfully on two cases of recurrent appendicitis in early pregnancy. Both mothers recovered, carried to full term, and were delivered of healthy children.

6. L. L. MCARTHUR: AMERICAN JOURNAL OF OBSTETRICS, vol. xxxi., p. 181.
7. L. L. MCARTHUR: AMERICAN JOURNAL OF OBSTETRICS, vol. xxxi., p. 181.
8. S. C. HARRISON: New York Medical Record, January 5th, 1895, p. 29.
9. J. W. THOMASON: New York Medical Record, September 21st, 1896, p. 407.
10. HOWARD CRUTCHER: New York Medical Record, September 26th, 1896, p. 461.
11. HIRST: Medical News, Philadelphia, December 15th, 1894.
12. WILLY MEYER: New York Medical Record, February 29th, 1896, p. 275.

OPERATION FOR UMBILICAL HERNIA ON AN INFANT SEVEN HOURS OLD.

BY

EUGENE BOISE, M.D.,
Grand Rapids, Mich.

OCTOBER 29th, 1896, I attended Mrs. H. E. in her first confinement. Labor progressed normally and uneventfully, and in due time the child was delivered. Immediately I noticed a tumor at the umbilicus, soft and compressible, but evidently hernial in character. I compressed it with one hand while manipulating the child with the other, directing the ligation and cutting of the cord, and when the child was quiet removed my hand and found a large hernia in the lower portion of the cord.

The intestines were plainly visible, covered only by the thin membrane of the cord. The opening into the abdomen was nearly as large as a silver dollar. The hernia was immediately reduced and a compress and band applied. After attending to the mother I gave instructions that the child should be taken to Butterworth Hospital, where I met it and operated for the radical cure of the hernia. Chloroform was administered, but not to profound anesthesia. The sac was cut away just through its integumental border. The vessels of the cord, which were separated about an inch, were tied with catgut and dropped into the abdomen. The fascia was united with interrupted silk sutures while the intestines and liver were held back by an assistant. The integument was united by a continuous suture of catgut. After the first twenty-four hours, during which the child was somewhat blue and breathed rapidly,

there was not an unpleasant symptom. When the dressings were removed (after six days) it was found that the integument had not united. This was due either to the section being made too near the integumental border—the vitality of the tissue being too low to admit of good union—or that the sac was not thoroughly cleansed and that the catgut became infected.

The fascia united nicely, but the integumental wound healed by granulation. About three weeks after the operation, before full granulation had occurred, it was found necessary to remove the silk sutures. This was easily accomplished. The wound was packed with iodoform gauze held in place by an adhesive strip, and over all a gauze dressing and band were placed.

The child is now well, with firm union of the fascia and a thin, small integumental cicatrix.

Several other similar cases have been reported, but the youngest of which I have any knowledge was by Piering, reported in the *Prager Medicinische Wochenschrift*, vol. xxi., No. 31. In his case the operation was performed during the first hour of life, because of rupture of the sac.

VENESECTION AND SALINE INFUSION IN THE TREATMENT OF UREMIA.¹

BY

JOHN VAN RENSSELAER, M.D.,
Washington, D. C.

WHILE the treatment of uremia, to which I shall call your attention this evening, is not new, it does not seem to be generally understood nor practised to the extent which its merits seem to deserve. Some years ago, while interne in a large city emergency hospital, it was a frequent occurrence to have brought in people who had fallen unconscious in the street or at their places of business, and who upon examination were found to be suffering from uremic coma. Many plans of restoring these individuals to consciousness were followed, not very satisfactorily until was inaugurated the method which I shall presently describe.

¹ Read before the Washington Obstetrical and Gynecological Society, May 1st, 1896.

Uremia is a condition of blood-poisoning. The function of the normal kidney is to eliminate from the system excrementitious substances which, when the kidney becomes diseased and fails to perform this office, remain in the blood and accumulate in vast quantity, finally producing symptoms which are those of poisoning. It is unnecessary to enter into the discussion whether urea is the one deleterious product or whether the condition is due to the aggregation of many substances; the fact is that these matters must be removed from the human organism until the kidney resumes its work, or the result will be fatal. It must be confessed there are some authorities who state that the blood drawn immediately after a uremic attack may contain no excess of urea, claiming that it is not the urea in the blood which causes the disturbances in the nervous centres, "but rather that an interference with the functions of the kidney must lead to a disturbance of the regular chemical changes in all parts of the body. Such an interference is followed by change in the nutrition of tissues, which shows itself in loss of weight, in anemia, and in disturbances of the functions of the brain. The opposition to all the chemical explanations of uremia looks to changes in the blood pressure as the exciting cause of uremic attacks." But this view is not the one accepted by the majority of pathologists, because post-mortem examination does not prove it to be so. I think most observers and those who are called upon to treat uremia regard the condition as one due to retention in the blood of some toxic agent with consequent poisoning of the blood centres, and direct their treatment accordingly. And these symptoms are: headache, either mild or very severe, but usually persistent and not relieved by the ordinary means; interference with vision in patients in whose eyes no anatomical change may have been discovered; vomiting or nausea not to be explained by errors in diet or gastric lesions; dyspnea, which may be the first symptom to cause the patient to seek medical aid, beginning upon slight bodily exertion or mental excitement or from no apparent cause; chronic endarteritis will be found associated with the kidney malady; contractions of groups of muscles preceding general epileptiform convulsions occurring either in the acute nephritis following scarlatina or diphtheria or as a symptom of advanced kidney change; delirium and coma, either associated with convulsions or coming on suddenly by themselves, or developed slowly and gradually and continuing for a considerable length of time; finally, increased arterial

tension, one of the most frequent and important of the symptoms of chronic nephritis, and one by which many of the other uremic symptoms are produced—this may come and go within a few hours, indicating vasomotor disturbance created by the irritation of vasomotor nerve centres by some deleterious substances circulating in the blood. In a word, all these symptoms are indicative of a poisoning of the nerve centres by those excrementitious substances which are not eliminated by the kidneys and which are accumulating in the blood current.

The first indication in the way of treatment is to remove from the circulation these poisonous substances, and this is usually done by stimulating the other emunctories to a high degree—the bowels and the skin—for the excretions of both are found to contain urea. The bowels are kept freely open or hypercatharsis produced, and for this purpose in uremic coma a drop or two of croton oil on the tongue is the most satisfactory agent when swallowing is out of the question. The hypodermatic injection of a grain or two of magnesia sulphate was heralded as a welcome means of purgation several years ago, but in my hands it was unsatisfactory.

Perspiration as the other means of elimination is to be encouraged, most safely by the application of external heat, either by the hot-air bath or the hot pack; often the latter will act when the former has failed. Pilocarpine, when used, must be guarded by heart stimulants. Within the past six months I have seen a case where pulmonary edema followed its use and a fatal termination speedily occurred. In this connection it is a curious fact to find that it is recommended in Wood's "Therapeutics" as of great value in facilitating the removal of local watery effusions, as in pleurisy, and that cases of pulmonary edema have been reported in which lives seemed to have been saved by its employment. The serous effusions contained in any of the large cavities must be withdrawn, as they hold urea in solution to a large extent; pleural effusions, peritoneal fluid, must be aspirated. Nitroglycerin to dilate the arteries and morphia to produce diaphoresis are also valuable. These means of removal must all be confessed to be indirect and, as compared with blood-letting, to be inferior. The only cases in which venesection would seem to be contraindicated are those of enfeebled heart action and anemia, and in these the infusion of a normal saline solution restores the heart action.

In a very able article entitled "A Clinical and Experimental Study of Uremia," which constituted the Boylston Prize Essay,

by Hughes and Carter, published in the September number of the *American Journal of the Medical Sciences*, 1894, they have this to say: "Free venesection will abstract directly some of the poison, and as a treatment cannot be too highly recommended. Applicable to any form of uremia, its good effect is most forcibly manifested in the grave cases. The existence of dyspnea is its most urgent indication, and next the presence of prominent cerebral symptoms. It seems, from our experience, that it may abort a threatened attack of uremia. A pronouncedly weak pulse will in no measure forbid its employment, for we have repeatedly seen the pulse strengthen while the blood was flowing. The quantity to be drawn will depend upon the exigencies of the case and the effect produced, being, as a rule, not less than a pint, or even a quart or more. Blood-letting may be beneficially supplemented by transfusion of a normal saline solution. Especially is this valuable where the loss of blood threatens to weaken the heart too much. The saline solution is also diuretic and may possibly be a direct antidote to the poison. The transfusion may be done intravenously in exceptional cases when time is of importance, but this may entail some danger unless most carefully performed. Practised subcutaneously, it will be found that absorption is marvellously rapid. We wish to urge strongly this transfusion, for in our hands it has proved of the greatest good. In a case of pulmonary edema, where its use would be theoretically contraindicated, it was followed by a most prompt relief of the symptoms, which blood-letting alone failed to abate." It is especially indicated in plethoric persons, or in alcoholic patients with visceral complications, when the pulse is of high tension, by relieving the overstraining of the laboring heart and diminishing pressure on the kidney. Shattuck, of Boston, commends blood-letting, but thinks it more appropriate in acute uremia of full-blooded persons than in that of a more chronic character, because the latter can less well spare the loss of blood.

The benefit to be derived from transfusion may have been suggested by the good results following cold-water enemata, which were given for a double purpose—to cause contraction of renal vessels through reflex stimulation of abdominal nervous centres, and through absorption of water to dilute the poisonous matters contained in the blood and to diminish the morbid symptoms due to these substances in concentrated form. The *modus operandi* is very simple: The arm having been cleansed at the bend of the elbow, a fillet or bandage is

applied to the upper arm to compress the vessels and produce a turgescence of the veins ; the median basilic or median cephalic vein is then incised and blood allowed to flow to the desired amount—a pint or a quart—after which a compress is applied to the opening. Either through this opening a canula attached to a rubber tube and funnel is introduced, or while the blood is flowing a hypodermatic needle is inserted under the skin of the other arm and the solution allowed to flow into the subcutaneous tissues to the amount of a pint or a quart, being taken up and absorbed very rapidly. The result of all this is that within a half-hour signs of returning consciousness are apparent, or at least evidences of irritation are manifest, as shown by movements of the arms and legs, tossing about of the head, and muttering which soon gives place to coherent speech. I regret I have not full histories of all the cases in which I have seen this treatment pursued, but the following is but one of several of a similar character.

William Robinson, æt. 42 years, white, was found by the police lying unconscious in Battery Park, New York, August 20th, 1891, and was brought in an ambulance to the House of Relief immediately. His appearance was that of a large, plethoric individual in a state of profound coma: frothing at the mouth; no odor of liquor could be detected. The passage of a catheter brought away a small quantity of urine, which was found to be highly albuminous and to contain hyaline and granular casts in large quantity. Motion and sensation were absent, and efforts to restore consciousness were fruitless. Face flushed, and pulse full and bounding, under high tension. The diagnosis of chronic nephritis with uremia was made. Venesection to the amount of thirty-two ounces was done, with infusion of the same amount of a normal saline solution into the other arm at the same time. Within fifteen minutes from the time venesection was begun the patient began to mutter, and within an hour he was so far recovered as to give his name, connections, etc. In three days' time he was able to leave the hospital, though complaining of a strange weakness which was entirely new and foreign to him. A few months later I saw him, having had no second attack, though he was complaining of dyspnea and swelling of his feet.

As a means of tiding over a dangerous period, venesection and infusion deserve more attention as a routine treatment than they have as yet received.

I have presented the subject to this Society with the hope

that it might prove valuable in puerperal eclampsia, than which there is no more dreaded complication the practitioner is called upon to face.

2 THOMAS CIRCLE.

GENERAL MANAGEMENT OF CASES DURING PREGNANCY
AND CONFINEMENT.¹

BY

MIDDLETON F. CUTHBERT, M.D.,
Washington, D. C.

It is with the firm belief that many of the discomforts of pregnancy and the risks attending childbirth could be lessened or obviated by more frequent observation of our patients during their period of gestation and by more rigid attention to details in their care during the lying-in period, that I select the above subject for consideration by the Society to-night. In accepting engagements for attendance upon cases of confinement it is too frequently our habit, I believe, to restrict our attention to the actual period of labor and the fortnight immediately following. That the dangers and discomforts of the lying-in chamber can be immensely influenced for the better by an intelligent, conscientious, and constant preliminary supervision of these cases will not, I think, be denied. Neither will it be denied, I believe, that it is often the custom for us to take it for granted that pregnancy is advancing in a normal manner, and for us to neglect seeing our patients until perhaps we are confronted during labor by some formidable complication which a timely observation might have enabled us to prevent. Pregnant women are prone to believe that their condition is necessarily accompanied by many disagreeable features, and, with the patience and fortitude characteristic of the sex, they frequently suffer without complaint such symptoms that were we informed of their presence, or were our patients made to understand the necessity for imparting such information to their medical advisers, much discomfort and danger could be avoided. As an illustration of this I might refer to a case in which I knew a labial abscess to form and, after causing much pain, to rupture spontaneously, the woman believing that such an

¹ Read before the Washington Obstetrical and Gynecological Society, May 15th, 1896.

occurrence was merely a feature of her condition. In another case I knew the formation of an umbilical hernia to be viewed in the same placid manner.

When engaged beforehand to attend a case of labor it is the duty of the physician to acquaint himself as thoroughly as possible with the condition of his patient, so that when labor actually begins he knows just what complications he may be called upon to meet. This preliminary examination by no means implies only an occasional test of the kidneys. We must be familiar with the state of the heart, the lungs, the digestive and nervous systems ; with any inherited or acquired peculiarities, such as a tendency to hemophilia or a history of insanity in the family ; and we must particularly be well informed, in the case of multiparæ, as to the character of their previous confinements. Forewarned is certainly forearmed in such cases, and many of us are able to recall anxious and trying experiences which might have been avoided had we adopted some of the suggestions which I embody in this paper.

Where practicable, weekly examination should be made in cases of pregnancy. By this method we learn the presence of adventitious growths, the condition of multiple impregnation, the position of the fetus, and, what is of the utmost importance, the presence of the afterbirth at, over, or near the internal os in cases of placenta previa. There can be no doubt that many lives could be saved by a timely recognition of this last-named condition, which would enable us to adopt such measures that the onset of hemorrhage could be promptly met and controlled. When cases of placenta previa are diagnosed before hemorrhage occurs the woman's best interests are served by sending her to a hospital, where she can secure immediate attention at the moment it is required. During the present year I have followed this course in one case with a most gratifying result. This preliminary examination would, of course, be of the greatest advantage in those cases of pregnancy occurring in women with contracted pelves. Both maternal and infant life could be saved in many of these cases by the intelligent induction of premature labor.

During the months preceding confinement much good can be accomplished by supervising the diet, exercise, dress, and general mode of life led by the patient. Anemia and plethora are conditions which often require correction. Constipation is a symptom productive of much discomfort, and, though amenable to treatment, often neglected. It is often best influenced

by the continued administration of strychnia, which also possesses the advantage of being the best of muscular tonics and so exerting a favorable influence upon uterine action. By recognizing beforehand the presence of organic disease of the heart we can, if unable to save the patient, often save the child; and by a frank statement, before labor begins, of the gravity of the case to the patient's relatives, we can save ourselves the mortification of an unexpected accident, and them the experience of a shock not anticipated. In every case of pregnancy the urine should be examined at frequent intervals. During the last few weeks preceding labor a daily examination should be made when practicable. In this way we are often enabled to form important conclusions and give a prognosis with exactness. In addition it enables us, by the timely application of methods of relief, to prevent what would otherwise mean most serious consequences. Besides its vital importance, this rigid attention to the condition of the urine implies much additional comfort to the patient, as it prevents nausea and headache and other disagreeable symptoms due to imperfect elimination of urea.

We are frequently called upon during pregnancy to prescribe some application for the nipples, with a view of preventing their subsequent soreness and cracking. It is my belief that the various astringent applications commonly used for this purpose tend to produce exactly what we wish to avoid. Cleanliness, relief from pressure, and perhaps the application of some non-irritating emollient, such as cocoa butter, is the best treatment. Astringent applications harden the tissue and, as before suggested, increase the tendency to chapping. We are sometimes consulted as to the propriety of a pregnant patient making a sea voyage. In uncomplicated cases I have never known ill results to follow such voyages, and in most cases the general condition of the woman is markedly improved by the change. In patients who give a history of malaria or who are residing in a malarial section, it is advisable to record the temperature for some days preceding the accouchement. By adopting this precaution we may save ourselves at times the anxiety and uncertainty that septic infection may be present, and the patient will be spared the annoyance of uterine irrigation.

We should select for our confinement cases the best available room in the house ; if possible, one with several windows and a southern exposure. It is of advantage, too, to have the woman

occupy a narrow and high bed. If practicable two such beds are of service, one for her confinement and the other for the patient to occupy after delivery. A bed of the description just given will materially lessen the fatigue of our attendance and will facilitate any mechanical aid which it may be necessary to employ. It is a recognized fact that the success of our obstetrical work is largely influenced by the character of the nurse we employ. Every physician should have the privilege of selecting his own nurse for these cases, but we too often permit ourselves to be influenced by the preferences of the patient or her friends. It is of advantage for us to know the quality of our nurse, and it is also a good plan for the patient and nurse to have known each other before meeting in the lying-in chamber. A competent nurse will save a physician much time and trouble by anticipating his requirements and by having at hand just such appliances as he realizes are necessary. The custom formerly in vogue for the nurse to make vaginal examinations has happily become obsolete.

A question of delicacy which the general practitioner is frequently called upon to decide is whether or not the conjugal relations should be continued during pregnancy. The condition of pregnancy *per se* does not contraindicate such relations, but does necessitate additional precautions regarding excesses in this direction. Again, we are constantly consulted by pregnant women as to the advisability of their having dental work performed. When such attention is necessary I believe its careful performance is accompanied with no risk. Certainly the continued aching of a tooth is more liable to produce trouble than would follow skilful measures for its relief. If operations of such gravity as the removal of ovarian cysts can be done without disturbing the course of pregnancy, we can surely permit, under anesthesia, the removal of a carious tooth or the application of such treatment as the presence of an abscess would call for.

King has stated in his "Manual of Obstetrics" what is most true, that every physician who attends confinement cases should be compelled by law to carry with him into the lying-in chamber such appliances as he enumerates and as are generally recognized to be necessary in meeting serious complications. It is a fact, and a lamentable one, that a fair proportion of practitioners are either destitute of, or are imperfectly provided with, such means of combating emergencies when they appear. Certainly, with the knowledge we possess to-day, two agents

should be at the immediate command of the accoucheur, and these are strips of aseptic gauze and an apparatus for the transfusion of a normal saline solution. As I know from personal experience in its application, the solution mentioned can be used satisfactorily by attaching an ordinary aspirating needle to the common fountain syringe. Every precaution advisable can be secured by a little systematic foresight without the physician being burdened with any great bulk. There are few of us, I believe, who, in the light of past experience, do not regret having been unprovided with the appliances just mentioned.

A careful supervision of the temperature is necessary after every case of confinement. A temperature ranging above 99° F., which cannot be positively ascribed to other causes, must be attributed to septic absorption and requires thorough uterine and vaginal irrigation. During the past winter I attended a case of labor in which a temperature ranging between 99° and 100° F. persisted for ten days. At the end of that period it suddenly rose to about 103° F. One irrigation of the uterine cavity produced a permanent reduction to the normal.

After a normal confinement vaginal douches are best withheld, unless indicated by some special demand. After the lapse of a week or ten days their use is of value for purposes of comfort and ordinary cleanliness. Amongst many physicians there is a tendency to too great restriction in the diet during the puerperium. A strictly liquid diet is unnecessary, and a light regimen, including eggs, toast, rice, and other easily digested articles of food, is indicated and will prove of value. Visitors, except those most closely related to the patient, should be excluded from the presence of confinement cases. As regards the best time for the woman to leave her bed, we can only say that no general rule in this respect can be applied to any number of patients. Each case must be decided on its own merit. My chief object in presenting this brief paper is that it may have some slight influence in calling attention to the value of being prepared to meet those contingencies which we all hope to avoid, but which we are at all times in danger of being confronted with.

TREATMENT OF SCARLET FEVER.

BY

H. M. McCLANAHAN, A.M., M.D.,
Professor of Diseases of Children, Omaha Medical College.
Omaha, Neb.

No one of the exanthematic diseases is so varied in its course as scarlet fever. Some cases are so light as to cause no serious inconvenience to the patient, others are so malignant and overwhelming as to destroy life in a few days: and between these extremes there are all grades. Each case is a law unto itself and requires treatment directed to the peculiar idiosyncrasies of the patient. Indeed, I think it would be better to speak of the treatment of patients suffering from scarlet fever, rather than of scarlet fever. The best that we can hope for is to safely conduct these cases to convalescence, and to prevent, as far as possible, complications and sequelæ.

In the first place I shall attempt to give general directions applicable to all cases, and, in the second place, to call attention to the prevention and treatment of the more important complications and sequelæ. The physician should ever bear in mind that any case, however light, may become serious, both immediately and in its remote effects, and therefore each case should be carefully managed. Among the laity treatment means the administration of drugs only, whereas the care and management are far more important than the mere use of drugs. The scarlet-fever patient should be promptly isolated. The sick-room should be well ventilated and properly heated. It should be divested of all articles of furniture such as carpets, draperies, pictures, etc., and should contain nothing but the bed, a stand, and wooden chairs. All soiled clothing used by the patient should be carefully wrapped in paper and washed separately from the family laundry. The discharge from the kidneys and bowels should be disinfected by pouring into the vessel a pint of a solution made by dissolving two pounds of sulphate of iron in three gallons of water. This solution should be kept in a wooden vessel in a convenient place. Small napkins made from old muslin or linen should be prepared for using about the patient, and these, when soiled, should be immediately burned. The

disinfection of the sick-room in the manner recommended by J. Lewis Smith is of decided advantage :

Carbolic acid.....	j.
Oil of eucalyptus	j.
Turpentine.....	vj.

A tablespoonful of this solution is to be added to a pan of water, placed upon the stove and allowed to simmer. In private practice, when a special nurse is not to be had, the attendant should wear in the sick-room a cotton gown covering the entire body and a cap to completely envelop the hair. When required to leave the room the gown and cap should be removed and the attendant's hands thoroughly washed. By strictly following these simple requirements I have often known a mother to nurse a child sick with scarlet fever and attend to general household duties, while other children in the house entirely escaped infection. The patient should be put to bed and kept in bed continuously until desquamation is complete. In light cases this may seem a harsh rule, but it is of benefit to the patient and is necessary in order to prevent the spread of the contagion.

A few words as to diet : Rotch, of Harvard, has called especial attention to the milk diet in the treatment of scarlet fever. My own belief is that if every case of scarlet fever were put on an exclusive diet of milk we would see fewer cases of renal affection following this disease. Milk is the one food that will completely nourish the patient, and experience abundantly demonstrates that patients do well on this exclusive diet. When the stomach is irritable lime water may be added. In two of my cases, where even this was vomited, I have used peptonized milk prepared in the following manner :

Milk.....	vij.
Water.....	vj.
Cream	j.
Peptogenic milk powder.....	measure j.

Mix in a saucepan over a slow fire and heat almost to the boiling point for twenty minutes, and stir constantly. Remove this from the fire, put in a closed glass vessel, and keep in a cool place. This will be found of decided advantage, especially with young children. The bowels are usually regular, but we should see to it that they move freely at least once each day. In every case it is a wise precaution to have the quantity of urine measured. This, in my judgment, is a more accurate index of the condition of the kidneys than even chemical tests.

The tests, however, for albumin are so simple that they should be frequently made during the course of the disease.

During the first two or three days we find some of these patients are extremely restless, and when this condition interferes with sleep I think that chloral hydrate is an excellent remedy, given in doses of two grains for a child two or three years of age, every two or three hours. It quiets the nervous system and promotes sleep. If the fever does not exceed 103° and the child be not restless, antipyretics are not necessarily indicated. Where, however, it seems necessary to control the fever I prefer tincture of aconite in small and often-repeated doses. Another excellent remedy is phenacetine, given in doses of two grains every two hours. However, if this remedy does not reduce the fever in a day or two, it is better to discontinue its use. Where the patient is extremely restless the ordinary rubber water bag used as a pillow will be found very grateful. Where, as we sometimes find, the rash is delayed or is not profuse, I am satisfied that a hot mustard bath, by its rubefacient action, hastens the eruption. When there is a very high temperature, threatening the integrity of the nervous system, the cooled bath is perhaps the best treatment that can be employed. In domestic practice this procedure is carried out as follows :

An ordinary wash boiler is filled half-full of warm water, and over the top of this a sheet is placed. The patient, divested of clothing, is placed upon the sheet and the body immersed in the water up to the neck. After a moment or two the water can be withdrawn and cold water added. The physician should usually personally supervise this treatment, and he should watch for symptoms of cyanosis or irregular breathing, and when such symptoms appear the child should be immediately withdrawn, placed in a warm bed between blankets, and carefully rubbed and surrounded with bottles of hot water. Under any circumstances the child should not remain in this bath to exceed six or eight minutes, and when taken from the bath it should be wiped dry and put in a warm bed. This procedure will generally be found to have reduced the temperature two or three degrees, and if it again goes up to the danger point (that is, 105°) the treatment may be repeated.

After the appearance of the eruption, and also during the whole course of the disease, itching of the skin is frequently an annoying symptom, interfering with the sleep of the child and causing it to throw off the covers and to be unduly

exposed. To relieve this frequent inunctions are necessary. My preference is the following:

Cocoa butter.....	℥ ij.
Carbolic acid.....	℥l xxx.

Warm the cocoa butter and mix with the carbolic acid and pour into a small cup. When cool it forms a convenient cake. This is to be frequently rubbed over the body. It not only relieves the itching, but it prevents the infection of the room and clothing. The inunctions of the skin should be kept up during the whole period of desquamation. After the eighth or tenth day, in ordinary cases, the patient should receive a warm sponge bath, using a little mild soap to remove the oil and epidermic scales. During the third or fourth week sponging the body with carbolized water, in proportion of a teaspoonful to a pint, is of advantage in more thoroughly disinfecting the patient.

The care of the throat and nose is extremely important for two reasons: first, to prevent the extension of the inflammation along the Eustachian tube to the middle ear; and, second, to avert the absorption of toxins from the extensive mucous surfaces. In young children it is important to use such treatment as will not alarm or give pain. When once we secure the co-operation of the child treatment is usually easy. The ordinary hand atomizer is the most convenient instrument for applying treatment. In those cases where there is an abundant exudation upon the tonsils and pharynx, occurring during the first few days of the disease, I think the following is an excellent formula to be used in the atomizer:

Peroxide of hydrogen.....	℥ j.
Bicarbonate of soda.....	gr. xx.
Water.....	℥ ij.

Spray the throat and nose every two hours. I do not think the use of this remedy should be long continued, for the reason that it produces a soft, pultaceous condition of the mucous membrane. After the exudates have been removed, if the throat is still red and painful, I prefer the following:

Soda borate.....	℥ ij.
Carbolic acid.....	℥l xx.
Listerine.....	℥ j.
Water.....	℥ ij.

to be used in the atomizer.

In those cases where there is a profuse, acrid discharge from the nose the use of the atomizer alone is not sufficient. In such

cases it is certainly a better practice to irrigate the nose freely. In children 4 or 5 years of age the ordinary piston syringe may be used, throwing the water freely through both nostrils. When, however, the patient is too young or too wilful to permit this treatment, I prefer the following: Wrap the child in a sheet pinned from the neck to the heels and have it placed upon the nurse's lap, lying upon its side. A fountain syringe filled with warm, sterilized water is hung at an elevation of about four feet. The nose and throat can now be irrigated without injury to the child. After the nasal cavity is thoroughly washed out by either of the above-mentioned methods, it can then be sprayed, with the atomizer, with the last-mentioned formula in order to disinfect the cavity. In this connection I wish to cite the following case:

Child aged 18 months. Taken sick with scarlet fever in November, 1895. On the tenth day of the disease the temperature was still 105° and the mucous membranes of the throat and mouth and nose were covered with a whitish exudate. The discharges from the nose and throat were so irritating as to excoriate the lips and face. The foul odor was so intense as to permeate the air of the entire room. The chain of cervical glands was greatly enlarged. The patient was in a comatose condition and it was impossible to administer any food. The child was certainly suffering from a general sepsis caused by the absorption of poisons from the mucous membranes of the nose and throat. I had the nose and throat thoroughly irrigated, in the manner just mentioned, every two hours. The quantity of mucus washed away at each treatment was enormous. However, after forty-eight hours of this persistent treatment the mouth and nose and throat were entirely free from any exudation. The mucous membrane was still red and swollen, but the foul odor had almost disappeared. The temperature in this time had fallen to 101° , and the child was now able to take milk, and convalescence was established. I will add, in mentioning this case, that there was no middle-ear or any other complication.

During the entire course of this disease the ear should be carefully watched. It is only necessary to remind the reader that scarlet fever ranks first as a cause of deaf-mutism. My personal observation is that careful treatment of the nose and throat prevents ear complications in many cases. I remember distinctly in the earlier years of my practice, before I gave any especial attention to this phase of the treatment, that I had a

larger number of cases of ear complication than has been my experience within the past three years. Where, however, this complication arises the following methods of treatment will be found useful. Where it is possible to anticipate this complication before pus has actually formed in the middle ear the operation of paracentesis will not only save suffering, but will more quickly restore the function of the ear. The operation is simple and with a little attention can be performed by the general practitioner. I quote the following from Dr. Pomeroy: "The forehead mirror should be worn, in order to leave the hand free to operate by either artificial or daylight. A good-sized speculum is introduced into the meatus. Then an ordinary broad needle about one line in diameter, with a shank of about two inches, such as oculists use for puncturing the cornea, should be held between the thumb and fingers, lightly pressed so as not to dull the delicate tactile sensibility. The part being well under light, the most bulging portion of the membrane should be lightly and quickly punctured with a very slight amount of force. The posterior and superior portion of the membrane is the most likely to bulge. The chorda tympani nerve ordinarily lies too high up to be wounded. The ossicles are avoided by selecting a posterior portion of the membrane. After puncture the ear should be inflated by an ear bag, whose nozzle is inserted into a nostril, both nostrils being closed so as to force the fluid from the tympanum. The puncture may need to be repeated at intervals of a day or two, provided that the pain and bulging return." Dr. Albert H. Buck says: "In this one slight operation, which in itself is neither dangerous nor very painful, lies the power to prevent the whole train of disagreeable and dangerous symptoms."

I have had the opportunity of performing this operation in but two cases, and in both the result was most gratifying. Where, however, as generally happens after the formation of pus in the middle ear, there is perforation of the membrana tympani with discharge of pus from the external meatus, the following plan of treatment will be found useful. This method was suggested to me some three years ago by Dr. H. Gifford, of Omaha, and since then I have used it exclusively in the treatment of these cases. The mother or nurse is directed to take a teacupful of boiling water and stir into it powdered boracic acid until a saturated solution is produced. The patient should lie upon his side, with the affected ear uppermost. A towel is placed about the neck. Then take an ordinary medicine-drop-

per, seeing to it that it has a smooth, rounded point. This is drawn full of the boracic acid solution and gently instilled into the auditory canal. Then compress the bulb, insert the point of the dropper into the ear, and when pressure is removed the fluid will be drawn up again into the dropper. This is to be emptied into another vessel. The dropper is again filled with the solution and instilled into the ear. This process is repeated a number of times and until the external auditory canal is entirely free from pus, as indicated by the fluid which is withdrawn. In cases where there is a very profuse discharge I have this treatment repeated every two hours. I now direct that the mother take a toothpick and wrap about it some absorbent cotton to make a small wick, directing that the cotton shall extend beyond the end of the pick at least an inch and a half. With this the auditory canal is carefully wiped out, and that, too, without any danger of injury. I now have dropped into the ear about three drops of the following:

Pyrozone, three per cent solution.....	3 ij.
Distilled water.....	3 vj.

After this treatment a piece of absorbent cotton may be placed in the concha, but not in the auditory canal. In several of my cases where this treatment has been carefully carried out there has been a cessation of the discharge of pus within a week with complete restoration of hearing. This treatment has the further advantage of being painless, and I have found no difficulty in securing the hearty co-operation of even the youngest patient. There is no doubt but that the warm solution relieves the pain in the inflamed ear, and that the child, recognizing this fact, the more readily submits to the treatment. Where the quantity of pus does not decrease in a few days, then the use of the ear bag is of benefit in more thoroughly emptying the tympanum, but in most of the cases I have not found this necessary.

Scarlatinal rheumatism is a comparatively rare complication. There are undoubtedly two varieties—one, closely allied to rheumatism, in which one or more joints are involved, swelling and excessive tenderness being the prominent symptoms. I have found the most relief from an application composed of extract of belladonna one drachm, glycerin seven drachms. The affected joint is gently rubbed with this preparation and covered with cotton batting held in place by a roller bandage. The other variety of synovitis is undoubtedly septic and con-

sequently serious. I have seen but one such case, that in a married lady 24 years of age. Both wrists and one ankle were involved. This complication developed on the sixth day of the disease, and the case terminated fatally on the tenth day with all the symptoms of an acute pyemia. An incision made into the wrist joint after death revealed numerous minute pus pockets.

The presence of a trace of albumin in the urine is not especially significant, this being found in perhaps fifty per cent of all the cases, but a diminished secretion of the urine during the third or fourth week is a danger signal which the careful physician should promptly heed.

In looking over the records of my cases I find, without exception, that scarlatinal nephritis and consequent dropsy have occurred as sequelæ of the mild cases. This is undoubtedly due to the fact that these cases go out earlier, and, being exposed, a sudden congestion of the kidneys results. In March, 1895, I had three children in one family all sick with scarlet fever. One, a boy of 4 years, had the disease in a mild form and was out of bed in a week. A week after being up he stood for some time at an open window. The next day there was almost a suppression of urine, and the following day, when I saw him, the eyelids were puffy, ankles edematous, and he complained of a constant headache. This simply illustrates how easily this important sequel may be developed. The treatment of this condition will vary owing to the urgency of the symptoms. In the milder cases, where there is no immediate danger of uremic convulsions, rest in bed with liquid diet and thorough purgation, with the use of diaphoretics, are usually sufficient. The important fact to be borne in mind is this : to give physiological rest to the impaired kidneys. A combination of calomel and resin podophyllin, in proportions of half a grain of the former and one-twentieth of a grain of the latter, given every two hours, will usually thoroughly unload the bowels. To secure free diaphoresis warmth in bed and small doses of muriate of pilocarpine meet the indication. For a child of 4 or 5 years we may give one-twentieth of a grain every four hours until profuse sweating is induced. After two or three days there will usually be an increased flow of urine, and then, *and not until then*, gentle diuretics may be given. An excellent combination for this purpose is infusion of digitalis (made from the leaves) four ounces, acetate of potassium three drachms ; give a teaspoonful in water every three hours.

Cream of tartar lemonade is another excellent diuretic. In more severe cases, with perhaps complete suppression of urine, with anasarca and uremic symptoms, more energetic treatment is demanded. I know of nothing so prompt and energetic as the dry hot-air bath, such as recommended by I. N. Danford in "American Text Book of Diseases of Children." I quote as follows from his article: "The patient, all but his head, is placed in a tent (made by supporting the bedclothes upon arches or semicircles of half-hoops or bent wire), and the bedclothes are drawn closely about the neck so as to exclude cold air and include hot air: the perforated tin box is then placed under the bedclothes by the side of the patient and about six inches away from him; a current of hot air from a spirit lamp is now conducted into the perforated tin box, which acts as a register or radiator, through the tin pipe. The result is usually very copious diaphoresis, which may be maintained for many successive hours, or even days in cases of emergency. In one case which seemed well-nigh hopeless the hot-air apparatus was kept in action almost constantly for ten days, and the patient made a perfect recovery. In some cases the hot, dry air evokes sensations of faintness or smothering; when this happens the heat should be increased very slowly, so as not to alarm or excite the patient. Now and then a case will be encountered which will not bear dry heat at all, while moist heat will be tolerated with both comfort and benefit. A few hot bricks, wrapped in wet cloths and placed around the patient under the tent, will produce active diaphoresis. This method, however, is less efficient than dry heat, and the latter will almost invariably be tolerated after a few trials."

The muriate of pilocarpine, given hypodermatically, can succeed the bath and continue the free diaphoresis. In my experience with two cases treated by the hot-air bath, I find that the tin box could be removed after an hour and the diaphoresis kept up by the pilocarpine for several hours. Then I have my patients rubbed dry and placed in a warm bed. In both of these cases this treatment was repeated daily until the secretion from the kidneys was re-established. After apparent recovery from acute nephritis great care should be exercised for weeks. I cite the following case in proof of this statement:

Two years ago there came under my care from an adjoining State a child 8 years old. The history was that six months previously she had had an attack of scarlet fever of moderate severity. This was followed, four weeks after the initial symp-

toms, by a general anasarca. She was indifferently treated, and came under my care five months later. I found upon examination not only general anasarca—the urine showing the presence of tube casts and numerous red blood corpuscles—but also a markedly dilated heart with a defective mitral valve. The patient died after remaining under my care for six weeks, the immediate cause of death being due to heart lesion. I am entirely certain, from the history of this case, that the heart lesion was secondary to the nephritis. The practical lesson from this case is that had the kidney lesion been promptly treated there would have resulted no heart complication, and a life, in all probability, might have been saved.

The more rare complications, such as cervical cellulitis, endocarditis, pericarditis, and pleuritis, will not be touched upon in this paper.

In conclusion, we meet with a certain number of cases that are decidedly anemic. While most of these do recover without any special treatment, I think in those cases where there is a tuberculous diathesis they should receive some tonic treatment. The remedies will naturally suggest themselves. I would only urge the use of syrupus ferri iodidi as one of the best.

In the management of scarlet fever the physician of to-day accepts a large responsibility, and he can only measure the full import of that responsibility by acquiring a thorough knowledge of the symptoms and pathology of scarlet fever, and the application of that knowledge in its care, prophylaxis, and treatment.

1312 NORTH FORTIETH STREET.

VARIOUS SKIN DISEASES OF CHILDREN.

BY

GEORGE HENRY FOX, M.D.,

Clinical Professor of Skin Diseases. College of Physicians and Surgeons, New York;
Physician to the New York Skin and Cancer Hospital, etc.

(With plate and seven illustrations.)

Syphilis hereditaria.—When syphilis is transmitted from one generation to another it may result in the death of the fetus in utero, or in the development of an infantile eruption which either is present at birth or appears shortly after. In most cases it manifests itself within three months, and always

during the first year. The eruption may be erythematous and appear as a general roseola, similar to the earliest eruption of acquired syphilis, or in the form of dull-red patches on the trunk and upon the palms and soles, which present a dry, scaly appearance quite characteristic of the inherited disease. About the mouth the skin is often dry and fissured, and on the buttocks the patches are apt to become raw and even ulcerated at various points. In some cases the eruption assumes a papular character (see plate), and numerous yellowish-red and slightly scaly discs are seen upon the buttocks, thighs, and face, and occasionally over the greater portion of the body. In rare instances the papules are small, flattened, and shining, and present a strong resemblance to lichen planus. Pustular lesions of an ecthymatous character are sometimes present, especially in infants who are ill-nourished and poorly cared for. Bullous lesions are not infrequently seen upon the palms and soles and other portions of the body, and in fact are much more common than in the acquired disease of adult life.

In connection with these early cutaneous manifestations a notable condition of malnutrition is usually observed, and certain characteristic symptoms resulting from affection of the mucous membranes and the osseous structures. The nasal passages are often inflamed and obstructed by an accumulation of mucus. The larynx may be affected, giving rise to a peculiar hoarse cry.

In the treatment of infantile syphilis a half-grain or more of mercury with chalk may be administered three times a day, and a speedy improvement expected if the child is properly cared for. When irritability of the stomach and intestines is present it is advisable to adopt the plan of mercurial inunctions. A mass of mercurial ointment, the size of a small marble, should be spread upon a piece of flannel and bound around the trunk or thighs, its position changed from day to day to prevent excessive irritation of the skin.

In treating mucous tubercles and superficial ulceration upon the buttocks and about the genitals, calomel powder mixed with three to five parts of starch may be sprinkled over the raw surface, care being taken to keep the affected parts dry and clean. The importance of fresh air and nutritious food must never be forgotten, and when the symptoms of the disease have abated the syrup of iodide of iron, and perhaps cod-liver oil, may usually be given with great benefit.

Erythema nodosum is one of the forms of erythema multiforme, though commonly described in dermatological text books as a distinct disease. It occurs most frequently in childhood, and the female sex seems especially prone to suffer from it.

The lesions in this affection are red, painful swellings, looking very much like recent contusions, and are most frequently seen over the tibiae. They are usually associated with slight fever, considerable malaise, and in some cases with articular pains. Both legs are commonly affected, and rarely are the lesions found elsewhere. In some cases, however, the lesions



FIG. 1.—Erythema nodosum.

are numerous and found upon the thighs as well as the legs (Fig. 1), and in rare instances the forearms may be affected. The lesions are at first of a bright-red hue, but soon become dull red or purplish, and usually disappear in a week or two. New lesions sometimes continue to appear and prolong the duration of the disease.

The cause of erythema nodosum is obscure. Most patients appear to be in poor condition, and a rheumatic tendency is sometimes noted.

The eruption always tends to a spontaneous recovery and shows no disposition to recur. While no medicinal treatment

is absolutely necessary, a saline laxative at the outset will often do some good, and may be followed by the administration of salicylate of soda.

Locally a lead-and-opium wash, or a lotion of zinc oxide in lime water, will tend to allay the burning pain or tenderness of the lesions, which is often a distressing symptom, and rest in bed for a few days is desirable during the height of the attack.

Purpura, or idiopathic hemorrhage into the cutaneous



FIG. 2.—Purpura.

tissues, results from many causes and occurs in connection with various diseases. It is usually characterized by small petechial or larger guttate spots, which are at first of a bright claret hue, but which rapidly assume a dull-purplish color. The eruption is readily distinguishable from an erythema or any inflammatory exanthem, since the redness does not disappear under firm pressure of the finger.

In purpura simplex the lesions are commonly symmetrical

and seen upon the legs, but in children more frequently than in adults the eruption may appear upon the thighs (Fig. 2) and other portions of the body. In a child suffering from whooping cough I have seen the chest dotted with petechial spots. When the hemorrhage takes place in or around a hair follicle the lesions are apt to be elevated, and to this condition the term *purpura papulosa* has been applied.

In mild cases of *purpura simplex* the lesions usually appear suddenly without other symptoms, and gradually fade away in one or two weeks, unless a fresh outbreak occurs. In this event the bright-red color of the recent spots contrasts strongly with the dull livid hue of the older lesions.

In severe cases of *purpura* the eruption may be very abundant, and with the cutaneous lesions hemorrhage from various mucous surfaces may occur. The gums are usually swollen and bleed easily. Epistaxis is frequent and blood is often noted in the stools and urine. This form of the disease is called *purpura hemorrhagica*. It is characterized by marked constitutional symptoms, and the weakness resulting from a continued loss of blood sometimes leads to a fatal termination.

Another form of the disease is associated with severe arthritic pains and the appearance of elevated purpuric lesions, especially in the vicinity of the affected joints. This is termed *purpura* or *peliosis rheumatica*. This affection usually runs a brief course, although a repeated onset of fever and rheumatic pains, followed by cutaneous hemorrhages, may protract it for months. It commonly attacks those who have a rheumatic tendency but are otherwise apparently well.

There is little difficulty in the diagnosis of *purpura*, as the color of the lesions is characteristic and their hemorrhagic nature can be readily demonstrated by the pressure of the finger. It is well to remember, however, that cutaneous hemorrhage is not infrequently an accompaniment of the eruption in severe cases of the common exanthemata.

In the treatment of mild cases of *purpura* rest in bed, with a nutritious diet and administration of the *tinctura ferri chloridi*, is generally followed by a prompt recovery. In severe cases, especially of the hemorrhagic type, iron, turpentine, and ergot are commonly employed with good effect. Ergot may be given by the mouth or by hypodermatic injection. For the latter purpose a grain of ergotin may be dissolved in warm water and glycerin, and injected with such frequency as the exigencies of the case may demand.

Molluscum is a term which has been applied to two distinct affections having no pathological relation to one another. One is the *molluscum fibrosum* of older writers, which is now commonly designated as fibroma. The other is the *molluscum contagiosum* which was first described by the English dermatologist Bateman early in this century. The latter is a somewhat rare affection of the skin, but of much more frequent occurrence in childhood than in adult life. It consists of one or more small,



FIG. 3.—Molluscum.

flattened whitish tumors, varying in size from a pin's head at the outset to a split pea when fully developed. These little growths are sometimes pedunculated and usually present a central depression, from which a whitish substance can be readily pressed out. This looks like ordinary sebaceous matter, but under the microscope is found to contain certain oval corpuscles which are a characteristic of the disease.

The tumors are commonly seen upon the face and neck, but

may occur on various portions of the body. They are usually multiple, sometimes numerous, and, though unsightly, are never the source of any particular discomfort. They develop slowly and last indefinitely. Each begins as a minute elevation of a whitish color, and gradually the flattened summit and umbilication develops. When of full size the walls are sometimes traversed by fine blood vessels which give the tumor a pinkish appearance.

The disease is often called *molluscum contagiosum*, and, though its contagious character is not always apparent, it has been known to affect several in a family or in a ward of a children's hospital, and attempts at artificial inoculation have sometimes been successful. It is doubtless of microbic origin, but the conditions favoring its development are as yet obscure. It is especially liable to affect children of a poorer class, and hence is much more common in dispensary than in private practice. Damp and crowded dwellings seem to favor its development, and in dispensary practice I have known a number of cases to originate in the same locality. Children suffering from molluscum are especially prone to have warts upon the hands.

The diagnosis of molluscum is usually made with ease by any one at all familiar with the appearance of the tumors. Large milia upon the face might be mistaken for them: but these tumors are rounded, of much firmer consistence, not likely to occur in groups, and always lack the characteristic flattened surface and central umbilication.

The treatment of molluscum is simple and effective. Many of the tumors, after a duration of a few weeks or months, undergo a process of destructive inflammation, and a spontaneous cure results. This is especially apt to be the case when two are close together and coalesce as they increase in size. If a tumor is vigorously compressed and the contents evacuated it will usually disappear. Incision and cauterization, or abscission by means of a sharp knife, have been recommended, but the simplest method of removing the tumors is to scrape them quickly with a curette and to lightly touch the bleeding surface with nitrate of silver. The main object in treating these tumors is to destroy them completely and to excite as little inflammation as possible in so doing. When even a large molluscum is removed by means of the curette no scar or trace of the growth is usually left, since the tumor is an outgrowth of the epidermis and does not involve the true skin. But when an inflamed molluscum is scratched or irritated to the extent

of inducing a purulent secretion, a slight pit may be expected to result.

Keratosis follicularis is an affection not infrequently seen in childhood, especially among children who are poorly cared for. It is the result of an abnormally dry condition of the skin and the accumulation of epidermic scales in the hair follicles. This produces an eruption of small, conical or rounded papules,

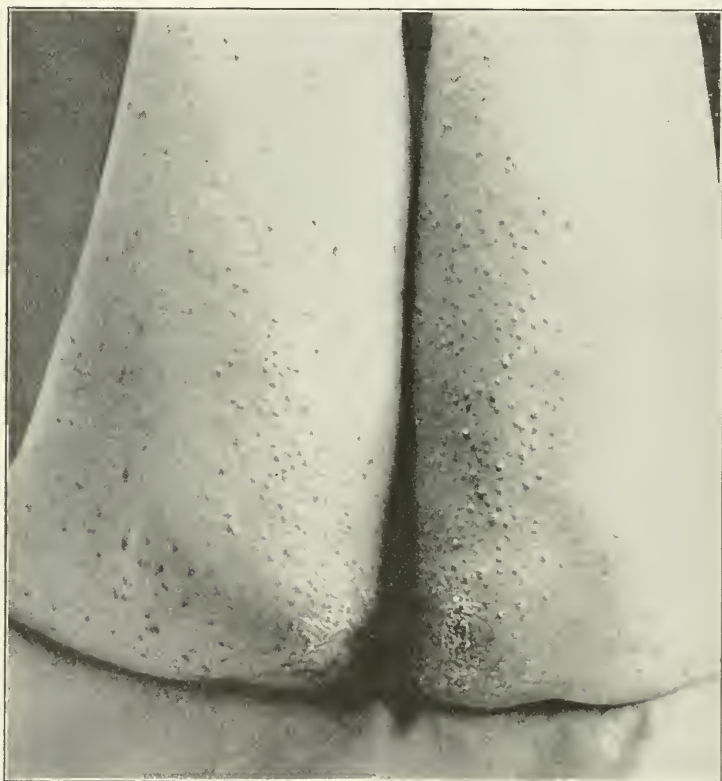


FIG. 4.—Keratosis follicularis.

which are commonly found upon the extensor aspect of the extremities. These are usually of the color of the skin. Sometimes they are discolored by dirt, and in some cases they become inflamed and present a dull-red hue. The fine hairs growing upon the affected skin are often broken off or coiled up in the follicles. When the disease is severe and of several years' duration the skin has an ichthyotic appearance and to the touch feels like a nutmeg grater.

The treatment of the disease is mainly palliative, as in many cases time alone will effect a complete cure. The daily inunction of the skin with some fat or oil, and the frequent resort to hot baths and vigorous soap frictions, will be productive of much benefit and often restore the skin to its normal condition. But this treatment must be continued for some time to prevent a return of the disease. A Turkish bath once or twice a week will prove of service.

Keloid is a dense fibrous tumor of the skin, which in certain



FIG. 5.—Keloid.

individuals is liable to develop upon the site of a cut, burn, or other injury. A distinction has often been made between true and false keloid, many writers claiming that the former develops spontaneously while the latter is always an outgrowth upon a scar. This distinction, however, is of little value, since the growth is the same in either case, and it is impossible to assert, in any case of spontaneous keloid, that it has not been preceded by some prick or slight injury to the skin. A distinction, however, may be justly drawn between keloid and a hypertrophic cicatrix. Many scars, especially those following burns, are

prone to pucker and bulge until a tumor is formed which looks very much like keloid, being rounded, smooth, reddened, and often very firm and even painful. But while keloid is characterized by a marked tendency to enlarge its area by the formation of claw-like processes suggestive of a crab, and to persist indefinitely, the hypertrophic cicatrix never extends beyond the limits of the scar tissue and tends to a gradual disappearance rather than to an increase in size.

Keloid is usually single, but many tumors may be present, and in some cases these attain considerable size. The growth is commonly painful when squeezed or pressed, and sometimes a continuous burning or pricking sensation is experienced. A spontaneous disappearance of the tumors has been reported, but this is exceptional. Keloid occurs at all ages, affects various portions of the body in both sexes, and is especially common in the negro race. The tumors increase in size for a certain time and then often remain stationary for years. A characteristic peculiarity is their tendency to return quickly whenever excised. A spontaneous disappearance of keloid is more likely to occur in childhood than in adult life, and tumors developing upon large scars are more likely to disappear than those which seemingly spring from the normal skin. A favorite site of keloid is the sternal region, where it often appears in adults as an elongated flattened tumor crossing the median line in a transverse direction. Its frequent occurrence in this locality has been attributed to the common custom of applying blisters to this part for the relief of acute pulmonary affections. It also is seen frequently upon the scalp, face, neck, and trunk.

The treatment of keloid is usually discouraging. Excision, as has been remarked, is usually followed by a return of the growth. Good results have been obtained by deep linear scarification and the application of glacial acetic acid to the cuts, and also by the use of the electrolytic needle. Subcutaneous injections of thiosinamine have been recommended, and in hypertrophic cicatrix I have known this to be followed by benefit. The results from the subcutaneous use of this drug in lupus, psoriasis, and certain other skin diseases have not proved to be as beneficial as its enthusiastic advocates of a few years since were disposed to claim. But in the relief of corneal opacities and cicatricial contractions it has apparently proved of value. Whether its use in true keloid will effect even a notable improvement remains to be demonstrated; but in cases of scar keloid which are tending to recovery it might, at least, be

tried in connection with the fatty inunctions and frequent massage which seem to do some good and certainly do no harm.

Scabies is a disease which in this country has notably increased in frequency during recent years. In most cases it is readily recognized by the characteristic location of the excoriated papules which mainly constitute the eruption. The disease, as is well known, is due to the burrowing of the acarus or itch-mite in the soft skin between the fingers and elsewhere, and is usually communicated by sleeping with, or in a bed which has been occupied by, a person affected with the disease. In recent cases the burrows or cuniculi in which the female



FIG. 6.—Scabies.

acarus has deposited her eggs may be found upon the web of the fingers, the anterior portion of the wrist, the axillæ, genitals, and ankles, and appear as small, curving dotted lines, from the extremity of which the insect may sometimes be dug out with the point of a needle. These burrows are often concealed by an eruption of vesicles, pustules, and crusted sores, and not infrequently the lesions of contagious impetigo are present. Upon other portions of the body the eruption usually consists of numerous excoriated papules covered by minute blood crusts. The anterior aspect of the forearms and the abdomen are especially apt to be the seat of the eruption, but when the disease

has existed for several months the eruption may cover the whole body, with the exception of the face, which always remains unaffected, except in the case of infants and very young children.

The treatment of scabies is simple and effective. For generations sulphur ointment has been a standard remedy, and nothing else is needed, although many other remedies and combinations have been recommended. A warm bath should first be taken to soften the skin, and soap used vigorously to remove the dead epidermis covering the cuniculi. The sulphur



FIG. 7.—Pustules in scabies.

ointment should now be rubbed gently into the affected skin, especially in those regions where the acarus is apt to burrow, and this inunction repeated, *without bathing*, for about five successive nights. Under this treatment the itching is abated and the disease usually cured. In severe cases it may be necessary at the end of five days to repeat the bath and the subsequent inunctions. In infants and young children, or in patients with a very delicate skin, it is advisable to dilute the sulphur ointment with one or two parts of vaseline or cold cream.

THE FACTORS CONCERNED IN CAUSING ULTIMATE ROTATION
IN OCCIPITO-POSTERIOR POSITIONS.¹

BY

W. REYNOLDS WILSON, M.D.,

Physician to the Philadelphia Lying-in Charity.

THE study of the mechanism in occipito-posterior positions has led to the differentiation of the following factors in causing anterior rotation of the occiput within the pelvis :

1. Direct pressure, the result of impingement of the fetal head upon the bony structure of the pelvis.
2. The resistance to the descent of the head exerted by the rigid pelvic floor.
3. The rotation of the shoulders at the pelvic inlet, producing co-ordinately a rotation of the head at a lower plane of the pelvis.

Which of these factors should be placed first in order of importance it remains for us to determine. It is necessary to remember, however, that each factor possesses importance only as it exists in relation to the other factors. Further than this, we must not fail to take into account the dynamic relation existing between the fetus and the maternal structures during labor—that is, the vital influence of the forces of Nature. This influence is absent in experimentation upon the cadaver, vitiating to a certain degree the deductions from such experiments. At the same time our theories of the mechanism in posterior positions have resulted largely from such observations. Before discussing the various factors in rotation of the occiput in occipito-posterior positions, it would be well to look at the frequency with which this position occurs.

Among the earlier writers its occurrence was considered less frequent than appears from the observation of most of the recent authors. Naegele first included it among the more common positions of the vertex presentations. He asserts that it occurs 29 times in every 100 cases where the vertex presents. Winckel's statistics bear simply upon the frequency of posterior rotation of the occiput with the escape of the latter over the perineum in all vertex presentations (1.29 times in

¹ Read before the Pan-American Congress, November, 1896.

every 100 such presentations), and should not be confused with the position of the child in vertex presentations with the head about to engage, these latter conditions offering the basis of diagnosis in the positions which we shall describe as posterior occipital positions. In our own observations, based upon 1,200 cases, the records of which are at hand, the right occipito-posterior position has occurred in this number of deliveries, including the various presentations, 234 times. Allowing a percentage of 95 for vertex presentations in the whole number of deliveries observed, we fall short of Naegele's ratio to a considerable degree. There is no doubt, however, of the correctness of our considering this a frequent position of the fetus.

Looking at the subject broadly, we find that in a large proportion of cases in which the vertex presents the back is directed toward the right side, in contradistinction to what we may call the normal position of the back—namely, toward the left. Thus, in all vertex presentations the dorsal plane looks either toward the left or the right. When it is directed toward the left, in the majority of cases the occiput is deflected anteriorly, giving rise to the L. O. A. position; and when toward the right, posteriorly, giving rise to the R. O. P. position. So that in either instance there exists some mechanical influence acting upon the fetal body to establish rotation according to the position of the back. It remains for us to study what this influence may be.

In taking up the various factors involved in rotation we may dismiss the first—namely, pressure exerted by the bony pelvis upon the head—as being insufficient to account fully for the phenomenon of rotation in occipito-posterior positions. Our reason for so doing lies in the fact that anterior rotation of the occiput frequently occurs at the end of the second stage of labor, often just as the head is pressed upon the extended perineum, and when it is beyond the influence of direct bony pressure. We must not forget, though, that anterior rotation earlier in labor solely from this cause does occur when the head is disproportionately large, or whenever the pelvis is generally contracted with increased obliquity. More important than the influence of these latter conditions, however, is the tendency of the head to sometimes descend into the pelvis without flexion having progressed to the proper point, so that the want of adaptation of the forehead to the pubic arch causes the former to be deflected to the side of the pelvis and allows the other pole of the head—namely, the occipital—to be deflected on the anterior

inclined plane of the opposite side and thus to be guided forward until, with increased flexion, it becomes engaged beneath the symphysis. This mechanism is analogous to that occurring in the more pronounced cases of descent of the forehead with posterior rotation of the occiput, where the forehead is deflected anteriorly, and where, flexion failing to occur, the head becomes disengaged as in a facial presentation.

As to the second factor—namely, the resistance of the pelvic floor—we may recur to our former assertion, that anterior rotation often occurs late in labor, or at the time when the head, strongly flexed, comes in contact with the pelvic floor. Indeed, in the anterior occipital positions we have the authority of Cazeaux and Tarnier in stating that “if the perineum were entirely absent the head would disengage at the outlet of the inferior strait without exhibiting its movement of extension. In the normal condition, however, and especially in primiparæ, the perineum, converted into an elongated gutter, arrests the downward progress of the head and directs it forward as upon an inclined plane.”

We may observe also the action of the pelvic floor in the lateral upward deflection of the body in breech deliveries. Edgar has demonstrated the influence of perineal resistance in favoring anterior rotation in occipito-posterior positions by a series of experiments upon the cadaver. He concludes, as a result of these experiments, that the pelvic floor is the essential factor in causing rotation of the most dependent portion of the presenting part. His clinical observations also support this, as in the study of the mechanism of such cases in primiparæ and pluriparæ he found in 47 primiparæ that internal forward rotation of the occiput failed in only 7 instances owing to resistance of the pelvic floor, and in 43 multiparæ (pluriparæ) failure was observed in 30. In the records quoted above we do not find the comparative frequency of anterior rotation in primiparæ occurring with quite such uniformity; for in 96 cases of occipito-posterior position in primiparæ in which the direction of rotation was observed, failure of anterior rotation is noted in 21 instances, while in 46 cases in pluriparæ failure was observed in as many as 10. When we take into account, however, that in 17 of the 21 posterior rotations in primiparæ delivery was accomplished by means of the forceps, we may conclude that anterior rotation in these cases had been interfered with. Our observations therefore coincide approximately with those noted by Edgar. These facts go to show that in

primiparæ, where the perineum is unstretched or free from laceration, the resistance is sufficient to drive the lowest presenting part forward in the direction of least resistance; whereas in pluriparæ, if the occiput is directed backward and the head descends well flexed, the stretched or lacerated perineum offers insufficient resistance to the descending head and the occiput is forced downward past the relaxed perineum instead of forward. Edgar states, however: "Such experiments can, of course, determine nothing as to the influence of forward rotation of the fetal trunk upon anterior rotation of the occiput. In other words, they fail entirely to show us what factor the rotary power attributed to the uterus plays in the production of movements of the occiput. Undoubtedly during pregnancy and the early stages of labor the position, shape, and contractions of the uterus play an all-important part in the production of the normal attitude, presentation, and position of the fetus; but that these factors, with the exception of the uterine contractions, are at all essential to the movements of the occiput the writer does not believe. Rotation of the head does without question occur independently of the body, as has been observed by many (Frommel, Schatz) and as can be seen by reference to Braun's frozen sections (Plate C). The influence of trunk rotation over cephalic is shown in the well-known clinical fact that the lateral posture of the parturient, right or left as the case may demand, does undoubtedly assist anterior occipital rotation in occipito-posterior positions and tardy rotation in original occipito-anterior positions. This the writer has, in a number of cases, been able to demonstrate to the pupil at the bedside."

This brings us to the question, "What other factor exists in determining forward rotation of the occiput in cases where abnormality of position due to faulty flexion exists, or in pluriparæ where, notwithstanding relaxation of the perineum, anterior rotation occurs?" In other words, why should the occiput rotate anteriorly in cases in which the two factors noted above—namely, direct bony pressure upon the head and resistance of the pelvic floor—are absent? Such cases do occur, as evidenced by the every-day experience of observers in this field. Note the records cited by us above, where the tendency to posterior rotation occurred in only 10 pluriparæ out of 46. In further support of this we may refer to the cases where, as labor progresses, the head descends steadily with the normal phenomena of mechanism occurring in succession

and without interruption, the occiput finally rotating beneath the symphysis, notwithstanding the presence of a non-resisting perineum. What, in such cases, has caused the occiput to rotate ?

In this connection we can refer to the third factor mentioned at the outset of our paper—namely, the influence of rotation of the shoulders at a higher point in the pelvis, producing co-rotation of the head. It hardly seems probable that the shoulders should remain a passive factor in the mechanism of labor, for the following reasons : In the first place, we are familiar with the effect of their rotation at the completion of the second stage of labor, in causing external rotation of the head. Secondly, their incompressibility, demanding space for their accommodation within the pelvis, is shown by the pressure they exert upon the perineum during delivery, causing, as they frequently appear to, the initial rent in the perineum after the head has passed over it safely. Lastly, we must regard the fetus as a unit, presenting an inflexible and compact body, which is forced in its descent to rotate *en masse*, according to the demand for space on its part, and the direction of least resistance on the part of the pelvis.

This statement is not opposed to the fact that rotation of the head may occur, to a certain degree, independently of the trunk, by twisting of the child's neck, but such rotation does not mean that the trunk and head are independent of each other in their movement.

The fetus may descend with the sagittal and bisacromial diameters deflected, in relation to one another, from the usual angle, but this deflection is not independent of the common influence found in the resistance of the bony and soft structures of the pelvis, acting upon different portions of the fetal body at the same time, and exerted at different planes of the birth canal. In simpler words, the head, impinging upon the pelvic floor, causes the occiput to rotate forward in the direction of least resistance, while the shoulders, in entering the cavity of the pelvis, are rotated from one position to another, the movement corresponding to the anterior rotation of the occiput. Parvin writes, in reference to the common occipital position, R. O. P., with the back directed toward one side: "The neck is much shorter than the lateral wall of the pelvis with which it is in relation, and hence the greatest (sectional) diameter of the (fetal) rod, the dorso-frontal, must enter the pelvic inlet so as to be in relation with its right oblique diameter. But the

descending back, curved and projecting, cannot rest upon the promontory of the sacrum, and hence there is a force of resistance which tends to throw the presenting part from an oblique to a transverse position. This change is possible only when flexion is perfect—that is, when the chin is so firmly pressed upon the chest that the head and upper part of the trunk make a unit, and thus a movement communicated to the trunk also causes the head to move.” In following the mechanism of such cases we may assume, according to this, the method of delivery to be as follows:

The dorsal plane of the fetus is directed toward the right, with the bisacromial diameter either in the left oblique diameter, allowing the back to look somewhat backward, or in the right oblique, allowing the back to look somewhat forward; in each case the back, generally speaking, is on the right side of the mother. The occiput (for we are speaking definitely of R. O. P. positions) in both instances is directed backward, so that the sagittal suture corresponds to the right oblique diameter. In the first instance, where the back is directed somewhat posteriorly, the head is in normal relation to the trunk—that is, the sagittal suture is at right angles with the bisacromial diameter of the body. In the second instance there is twisting of the neck approximately to the extent of forty-five degrees—that is, allowing for the tendency of the head to engage somewhat transversely in such cases, otherwise (that is, if the shoulders were in the right oblique and the head in the same diameter) the head would be twisted upon the body until it would be at right angles with the shoulders, which is an impossibility. In the first instance, as the head would descend and become more and more flexed, the shoulders, in their descent into the cavity of the pelvis, would seek the more spacious diameter, namely, the transverse. This would leave the head free to be influenced by the action of the pelvic floor, which by its resistance would further increase the flexion of the head until its long diameter had rotated into the antero-posterior diameter of the pelvis, bringing the occiput posteriorly and forcing it over the perineum, thus causing it to disengage by extension in a backward direction. The shoulders would then seek the antero-posterior diameter at the outlet, just as the head, which preceded them, had done, and we should have external rotation of the head toward the right side with completion of delivery.

On the other hand, if the shoulders should engage in the right oblique diameter, with the back somewhat forward, and

the head seeking the same diameter with the occiput posteriorly, we have the following mechanism: The shoulders seek the transverse diameter of the cavity, and, as they do so, the occiput impinges upon the pelvic floor, and, following the direction given it by the new position of the shoulders, glides with its greatest periphery past the spines of the ischium, the occiput forward on one side and the forehead backward on the other, the former finally rotating to beneath the symphysis and labor being terminated as in a normal vertex position.

Such description of the mechanism in posterior occipital positions seems the logical outcome of our studies of the various factors concerned, and is intended to bring into greater prominence what seems to be the one factor among others to which insufficient attention has been given—that is, the influence of the trunk, in relation to the position of the back and shoulders, upon internal rotation of the vertex.

In conclusion, we must refer again to the actual unity of the compact fetal body, the result of uterine contraction, on the one hand, and the compression exerted by the bony pelvis on the other, which admits of this co-rotation between the different parts of the fetal structure.

112 SOUTH TWENTIETH STREET.

REFERENCES :

WINCKEL : *Lehrbuch der Geburtshülfe*, Leipzig, 1896.

CAZEAUX : *Sixth American Edition of Treatise on Midwifery*, Philadelphia, 1878.

EDGAR : *THE AMERICAN JOURNAL OF OBSTETRICS*, volume xxviii.

PARVIN : *Obstetrics*, third edition, Philadelphia, 1895.

CESAREAN SECTION :

OBSTRUCTION OF THE PELVIS BY A LARGE FIBROID TUMOR : PREVIOUS
INDUCTION OF PREMATURE LABOR : RECOVERY.

BY

JAMES F. W. ROSS, M.D.,

Professor of Gynecology, Ontario Medical College for Women ; Lecturer in
Gynecology, Toronto University,
Toronto, Can.

THE following case may be of considerable interest to some of your readers. In several papers I have discussed the method of procedure that should be adopted in cases in which an abdominal tumor complicates pregnancy. One of these was

published in the Transactions of the American Association of Obstetricians and Gynecologists, 1891; another in the *Canadian Practitioner*, September, 1896, read before the meeting of the Canadian Medical Association, held in Montreal, August, 1896. I have in the latter paper made the following statements: "The early emptying of the uterus in cases in which pregnancy occurs in the presence of a fibroid tumor has, in my hands, been satisfactory, but, owing to religious and moral feelings, some mothers may refuse to sacrifice the fetus in utero for the sake of saving their own lives. When this is so pregnancy must be permitted to proceed. When pregnancy has advanced to the later months craniotomy, embryotomy, or difficult forceps delivery should not be thought of for a moment. If the patient can be delivered by the production of a premature labor that can be terminated without great instrumental force and with a fair chance of saving the child, it may, perhaps, be tolerated. But if, under other circumstances, craniotomy or embryotomy or difficult forceps delivery are under consideration on the one hand, while delivery through an abdominal incision is under consideration on the other, the indication, to my mind, must always be in favor of an abdominal operation. There is no reason why such patients should be allowed to become almost collapsed before these questions are taken up and carefully considered. There must always be weeks of waiting before the onset of labor, and it is in this interval that the attending physician must exert himself to place his patient in a position of safety. Plans can be matured and arrangements made with deliberation and without hurry." At another place: "It has occasionally happened that these fibroid tumors growing from the cervix, contrary to the expectation of those in attendance, have been drawn up during the progress of delivery and the fetus has been permitted to pass into the vaginal canal."

At the time that this was written for the meeting in Montreal I had under observation a little woman with a large fibroid tumor growing from the cervix uteri into the folds of the broad ligament. I saw her a year and a half before with her physician after he had emptied the uterus. She miscarried in the third month. The doctor, noticing a tumor, asked me to see her in consultation. I found that a fibroid was present, that it had already attained considerable size, and advised operation to eliminate the danger of subsequent pregnancy. The operation recommended was oöphorectomy. She refused to be operated upon. In August, 1896, she consulted me at my office.

She was about three months pregnant. On examination the tumor was found very much increased in size and I advised the induction of abortion, to which the patient was loath to consent. After a consultation the membranes were punctured, but the patient failed to miscarry. As I was leaving town on the 26th of August, she decided to wait until my return before permitting any second attempt. She left the hospital and went home.

On my return home after a month's absence she again consulted me at my office. The tumor had increased rapidly in size and now blocked the entire pelvis. The pregnancy had advanced and had reached the fourth month. I advised the induction of premature labor. The patient hesitated, hoping that she might be delivered by Cesarean section of a living child at full term. She was very anxious to have a child. I told her this would be impossible, owing to the rapidity of the tumor's growth. Considerable delay now ensued. She at last returned and decided to follow my advice. I informed her that it might not be possible to empty the uterus by the natural route, and that if I found this impossible without considerable obstetrical traumatism I would deliver through the abdominal wall. Labor was induced by means of a sterilized bougie passed into the uterus. This was left in for three days without producing any effect. Pains then set in, and on October 26th, 1896, at 3 in the afternoon, the waters broke while the patient was sitting up out of bed. Shortly after there was a very smart hemorrhage. The patient was immediately put to bed, and my confrère, Dr. J. A. Temple, who was in the ward at the time, examined her and found the placenta presenting. A plug was introduced, the hemorrhage ceased, and we decided to wait until morning and give the uterus an opportunity of expelling its contents. Early next morning we saw her together and decided that no progress had been made, that delivery from below would never be accomplished, and that the safest procedure would be delivery through the abdominal wall by Cesarean section. The patient having been prepared for any emergency, I went on with the operation at once.

The abdomen was opened, uterus drawn out, a piece of rubber drainage tube was passed around its base for the purpose of constricting it. An incision was then made in the front wall and a decomposed fetus and placenta were removed. The placenta was met just beneath the incision. The uterine mucous membrane had a grayish, sloughing appearance,

undoubtedly already septic. Interrupted fine silk sutures were used to close the opening in the uterine wall. These were not allowed to penetrate through the mucous membrane ; they were placed at short intervals from one another. Before tying the sutures a piece of iodoform gauze was passed in through the incision in the uterus and down through the cervix uteri from above to act as a drain for that cavity. After the constricting tube was loosened from the cervix uteri there was some oozing from along the line of incision, but a little pressure with a warm sponge soon stopped this. The uterus was then washed off with warm water, and the sterilized towels that had been placed around it were removed. Both ovaries and tubes were removed and the uterus was replaced in the abdominal cavity. It was found impossible to remove the tumor, as it was growing into the folds of the broad ligament away below the uterus. Two good doses of ergot were given hypodermatically. The abdomen was closed without any drainage tube : the drainage from the cervical canal was thought to be sufficient for all purposes. The patient made an uninterrupted recovery, and is now, after all her suffering, just where she would have been had she accepted my advice before the pregnancy occurred.

Except in two cases in which I was forced to perform Porro's operation, I have always been able, with this one exception, to empty the uterus from below. This patient undoubtedly owes her life to the fact that she was carefully watched from the early months of pregnancy, that she was removed to the hospital and placed in the best possible position for any emergency. She was not allowed to become exhausted before operation was decided upon. In these cases, even though the fetus has been removed, it is sometimes a matter of extreme difficulty to remove the placenta. In one case the removal of the placenta occupied me for three hours. Several times I felt like desisting. The uterus was pressed in from each side by large fibroid masses, and a large fibroid mass below obstructed the entrance of the hand into the uterine cavity. By manipulating the growths with the hand over the abdomen the anterior portion of the cavity of the uterus could be reached. A posterior pouch, that evidently did not contain any placenta, could not be reached. The patient made a good recovery.

THE MANAGEMENT OF TUMORS OF THE UTERUS AND
APPENDAGES COMPLICATING PREGNANCY.

WITH A REPORT OF TWO SUCCESSFUL CASES.

BY

B. AUSTIN CHENEY, M.D.,

Assistant Professor of Obstetrics and Gynecology in Yale University.

(With one illustration.)

MORBID growths of the uterus and of the appendages do not commonly occur as a complication of pregnancy. On this account the study of their influence upon the pregnancy and the labor, and in turn the effect of the pregnancy upon the neoplasm, is of interest. The coexistence of an ovarian cyst and pregnancy is of comparative rarity. In the Berlin Frauenklinik an ovarian cyst was found only five times in 17,832 births. Martin had 4 cases and Sir Spencer Wells is credited with 10 cases of this complication. Recently Olshausen, who enjoys unusual opportunities for clinical observation, has reported 26 cases. The effect of pregnancy upon pre-existing cysts of the ovary is a stimulation to further and rapid growth. This is especially the case where the cyst is small and pelvic in position. The growth of the tumor has, as may be inferred, in many cases a direct influence on the pregnancy. Abortion is comparatively frequent in this condition. Remy states that in 321 cases of pregnancy complicated with ovarian cyst abortion took place 55 times. This tendency to premature discharge of the ovum is due to pressure exerted upon the uterus by the tumor and to mechanical interference with its further development, to deficient quantity of blood supply, and also probably to the irritation of the sympathetic system. This is, however, not the greatest danger to which the patient is exposed. At any time during the pregnancy or during the labor twisting of the pedicle may occur, with gangrene and suppuration of the tumor. Or rupture of the cyst may take place with escape of its contents into the abdomen. Obstruction of the intestinal canal, due to pressure of the cyst, is also a possibility. The occurrence of these accidents is much more frequent during pregnancy and labor than in the non-pregnant state.

Should the patient escape these accidents during her pregnancy, the probability of the cysts becoming an obstacle to

labor must be remembered. In this connection it may be noted that the smaller cysts give more trouble than the larger, on account of their descent into the pelvis early in labor and their eventual incarceration. At the same time the larger tumors may make mischief enough by causing lateral displacement of the uterus, with the consequent prevention of the engagement of the presenting part of the fetus.

Even after successful delivery of the fetus the danger is not past. The contraction and retraction of the emptied uterus necessarily makes tension on the pedicle of the cyst. Any adhesions existing between the tumor wall and the abdominal viscera are put upon the stretch, and irreparable mischief may be done to important organs.

The comparison of the different methods of treatment of this complication during labor and during pregnancy is worthy of more than a passing glance, on account of the significant bearing it has upon the management of those cases, discovered during gestation, where an elective course is possible. In labor terminated by forceps without puncture of the cyst the maternal death rate has been 50 per cent. Where version has been done, also without puncture, the ratio has been very nearly as high. Cesarean section and removal of the growth here recommends itself as being a more scientific procedure, in that the labor is terminated at once without exposing the patient to any danger of injury to other organs, or even to the cyst itself, and that the growth is not left behind as a menace to the puerperium and to the future well-being of the patient. Herberg's analysis of 271 cases shows this very thing in a maternal mortality of 25 per cent and a fetal mortality of 66 per cent.

But where the existence of the cysts is known before the onset of labor, and the surgeon can elect his course, immediate ovariectomy gives far better results. This is apparent from a glance at Gordon's collection of 204 ovariectomies at different periods of gestation. He reports 21 cases where the mothers all recovered, but where the result as to the pregnancy is not given. Seven times the uterus was injured, causing death twice. Of the remaining 176 cases, 93.2 per cent recovered and 6.8 died. In 69.4 per cent the gestation proceeded and the patients were delivered at term, while in 22 per cent premature labor followed the operation.

These figures speak for themselves and must be the guide to the management of this complication when it can be recognized before labor. While the mortality of Cesarean section is one-half that of delivery after puncture, early interference is little

more than one-fourth that of Cesarean section. Strange as it may seem, the mortality from ovariectomy during pregnancy is very little higher than in the non-pregnant state. It will be noticed that ovariectomy has a tendency to cause premature labor (22 per cent in 176 cases). This has no bearing on the treatment, because we have just seen that the mere presence and interference of the cysts with the growth of the ovum caused abortion 55 times in 321 pregnancies, and we also noticed the very high infantile mortality where operation was performed during labor. Sentiment against incurring risk for her offspring might deter the patient from consenting to early operation, but cannot influence her medical adviser.

Up to the year 1877 there are recorded 14 ovariectomies with this complication. At the end of the year 1892 Dsirne was able to collect 135 cases. Mention has been made already of Gordon's statistics (1894) of 204 cases. The increase in the number of cases reported is significant as indicating the growing sentiment in favor of elective operations.

The coexistence of pregnancy and myofibromata of the uterus is tolerably uncommon, on account of tendency of this form of tumor to cause sterility. Scanzoni has made the assertion that at least 50 per cent of women having fibroid of the uterus are sterile.

Pedunculated subserous fibroids have even a more marked influence upon pregnancy and labor than ovarian tumors. On account of their more intimate relation with the uterus their blood supply is greater and their growth more rapid, and for the same reason the production of premature labor and causation of dystocia more probable. Incarceration and twisting of the pedicle are more possible than in ovarian tumors, and the results are much more dangerous. Statistics are of little value here, because in recording cases of dystocia due to fibroids all kinds of the growth have been put together. Stavely has reported, however, 16 cases of subpedunculated fibroids operated upon during pregnancy. There were 4 deaths, and it is fair to state that one of these was in a patient suffering with aortic disease. One case aborted and one died after giving birth to a still-born child. These figures are encouraging, and may be fairly assumed, with our previous knowledge of the statistics of the complications of ovarian cysts, to be much better than any expectant method of treatment.

CASE I.—In March, 1893, I was asked by Dr. O. T. Osborne to see Mrs. S., VIIIPara, married fifteen years, 39 years of age, height 5 feet 7 inches, weight 160 pounds, native of Bavaria.

The patient had aborted the previous Christmas, and had suffered with menorrhagia ever since to such a degree that she was profoundly anemic. Her heart was irregular in its action and the *bruit de diable* was pronounced. Upon examining her I found that the uterus was much enlarged and soft. There were present two ovarian cysts, the one on the right side as large as a cocoanut and that on the left as large as a goose-egg. When I told her of the presence of the tumors she stated that she knew of them, and that the larger one had very much interfered with her last labor until the attending physician had been able to push it out of the pelvis. The uterus was thoroughly curetted, washed out, and drained. The scrapings showed (under the microscope) the usual endometritis post abortum. Her recovery from the operation was rapid and complete, the response to chalybeates being most remarkable. Promptly four weeks after the date of curettement she menstruated normally as regards amount of flow and pain. Again after four weeks a second like menstruation occurred. Conception took place soon after this menstruation. With the conception the abdomen rather rapidly enlarged, so that when she presented herself for examination late in September the large tumor was as large as an average adult head, and the small one was of the size of a grapefruit. Immediate operation was advised. At the end of a fortnight, when she entered my private hospital, the larger cyst seemed smaller and not so tense, and the presence of free fluid in the belly was made out. I removed the tumors by abdominal section in the usual way, and the patient went off the table in good condition. Although great care had been exercised during the operation to handle the uterus little or not at all, I thought best to administer a quarter-grain of morphine hypodermatically, and thus to head off any irritability of the uterus which might follow. The dose was repeated twice during the next twenty-four hours. The patient made an uneventful recovery and left the hospital in three weeks and a half. Five months later she came in labor and I delivered her with forceps of a male infant, weight twelve pounds. Instruments were used, so that the abdominal scar should not be weakened by the contraction of the muscle.

On examination the larger cyst was found only about seven-eighths filled with fluid. Clear water was very slowly injected with an aspirating needle into the tumor, when it was found that there was a minute opening in the cyst wall which allowed of the escape of the fluid. The growth proved to be a beautiful specimen of a papillomatous cyst (see illustration).

When the tendency of the papillomatous cyst to rupture and to proliferate on the surrounding peritoneal surfaces is remembered, it will be seen that this cyst was probably undergoing that process. Some authorities claim that this growth is generally malignant; that they are prone to undergo cancerous degeneration is, however, a well-established fact. In this connection it is interesting to note that the patient expresses herself, at this writing, as feeling as well as she ever did. Rupture of a papillomatous cyst during labor or pregnancy could not



Papillomatous cyst of ovary. Everted.

but bring disaster to the patient on account of the infective nature of the growth.

Attention is directed to the cure of the endometritis by the curette, as evidenced by the prompt conception, and also to the possibility of conception occurring in the presence of such thoroughly diseased ovaries.

CASE II.—Dr. Edmund S. Thompson requested me, in February, 1895, to examine Mrs. T., American, primipara, married one year, age 32, height 5 feet 5 inches, weight 130 pounds. Mrs. T. had always been perfectly regular up to December

15th, 1894. She had not menstruated since. She had many subjective signs of pregnancy and also the usual changes in the breast. Her abdomen had grown more rapidly, however, and was larger than her period of gestation warranted. Upon examination the pregnant uterus could be mapped out, and close to it (seemingly part of it) was a solid mass the size of one's head. Dr. Thompson had had the case under observation for a month and assured me of the rapid growth of the tumor. A firm, fat panniculus prevented accurate determination of the relation of the tumor to the uterus, and she was accordingly examined under ether. A well-marked sulcus could then be felt between the pregnant uterus and the tumor, and slight independent motion of each could be obtained. A diagnosis of subserous fibroid or tense ovarian cyst was made. I operated upon her at my hospital March 4th, 1895. The tumor was found to be a subserous fibroid attached by a broad but extremely soft pedicle to the right cornu of the uterus. Considerable difficulty was experienced in treating the pedicle that there might be no chance of secondary hemorrhage. Aside from this the operation presented nothing unusual and the patient left the table in good condition. Guided by my previous experience and conscious of the unavoidable handling of the uterus, I resorted to morphine under the skin as often as was necessary to quiet the uterine irritability. The patient made an uneventful recovery and left my hospital in four weeks. She was delivered at term, August 29th, 1895, of a female infant, weight 7 pounds, by Dr. E. W. Davis, of Seymour. She is in perfect health to-day and her abdominal scar was not weakened by the labor. It is interesting to note again the extremely rapid growth of the tumor coincident with the growth of the ovum.

40 ELM STREET.

BIBLIOGRAPHY.

- DSIRNE : Archiv für Gynäkologie, xiii, 3.
 EVERKE : Centralblatt für Gynäkologie, No. 24, 1894.
 GORDON : Centralblatt für Gynäkologie, No. 23, 1894.
 MANGIAGALLI : Berliner Klinische Wochenschrift, No. 21, 1894.
 OLSHAUSEN UND FLAISCHLEIN : Zeitschrift für Geburtshülfe, xxix.
 POZZI : Gynécologie.
 SCHÄFER : Zeitschrift für Geburtshülfe, xxvi., 1.
 SCHROEDER : Frauenkrankheiten.
 STAVELY : Johns Hopkins Bulletin, No. 38, 1894.
 STORER : Boston Medical and Surgical Journal, November 5th, 1896.
 TERRILLON : Archives de Tocologie, April, 1888.

RAPID DECREASE IN THE SIZE OF A FIBROID TUMOR OF
THE UTERUS FOLLOWING ITS TREATMENT BY ELECTRICITY.

BY

A. LAPTHORN SMITH. B.A., M.D., M.R.C.S. ENGLAND.

Fellow of the American Gynecological Society ; Gynecologist to the Montreal Dispensary
and to the Samaritan and Western Hospitals ; Professor of Clinical
Gynecology in Bishop's University,
Montreal, Canada.

ALTHOUGH I have ample reasons for believing in the value of Apostoli's method in the treatment of endometritis and fibroid tumors of the uterus, having cured about sixty cases of all their symptoms by this means, yet I have almost abandoned this method of treatment and ceased reporting or saying anything about the few cases in which I have still continued to employ it, simply because the surgical spirit dominates our medical meetings at present, and one case cured by a short and brilliant operation is more appreciated than sixty cured by the safer but more tedious and troublesome treatment by electricity. Others, no doubt, who employ it feel the same way, and so it has come to pass that doctors often make the remark : " We never hear of Apostoli's method now ; is it dead ? " I believe that it is still being used with good results by many who no longer care to report them. To encourage the others I will now relate the following case.

Mrs. X., a married lady without children, 32 years of age and a resident of Phoenix, Arizona, was sent to me by Dr. Philp, of Los Angeles, California, under whose care she had been. For years past her periods had been coming more and more profusely, until they lasted sixteen days, during which time the blood came in large clots ; and for two years she has noticed that she was growing stouter. She was treated with ergot for a long time, with the result that the duration of the flow was reduced to six days and on one occasion to four. In spite of this, however, her general health suffered greatly and she became very weak and anemic. She was examined by several physicians, who pronounced her case fibroid tumor of the uterus. The lady's husband has sent me their names, and, as they are all gentlemen of high standing, it will help to establish the diagnosis more firmly if I mention them now.

They were Dr. H. N. Hughes, of Phoenix, Arizona ; Dr. D. M. Purneau, of Phoenix, Arizona ; Dr. W. S. Philp, of Los Angeles, California; and Dr. N. Hayes, of Seneca, Kansas. She was advised by some to have the uterus with the tumor removed by abdominal hysterectomy. This she was loath to consent to, and deferred from day to day the taking of any steps toward this end, when, during a visit to the Pacific seashore for her health, she came under the care of Dr. Philp, of Los Angeles, who was the first to hold out any ray of hope that she might be cured without the risk of an operation or the loss of her ovaries. He advised her to come to me, and accordingly on August 26th, 1896, she arrived at my sanitarium. On examining her I found a solid tumor as large as a fetal head in the left and anterior wall of the uterus, which together with the uterus constituted a mass considerably larger than the fetal head, because it was too large to be engaged in the pelvis, but was resting, like the pregnant uterus at six months, on the pelvic brim and extending above the umbilicus. She was so tender that at first it was impossible to introduce the sound ; nor was I able to do so until I had made several unsuccessful attempts on successive days, the obstruction being apparently at the internal os or a little above it. After losing nearly a week without having been able to even begin the treatment, I was somewhat discouraged : and I was still more so when, after great difficulty, I got the sound in a distance of three inches, I found that the patient could not tolerate even thirty milampères. I telegraphed to her husband for permission to operate, and he gave his consent, and I tried hard to obtain the patient's also. I told her that the electrical treatment would take three months' time, and even then I could not be sure the tumor would be very much smaller : and that even if I did reduce it in size before she left for home I could not promise that it would remain cured after she returned ; and, in view of the distance she had come, it would be better to do something quicker and more certain in its results—namely, to remove the ovaries and tie the arteries close to the uterus. Indeed, I did all in my power to persuade her to allow me to operate. On the other hand, she pleaded that she had absolute faith that electricity would cure her, if she could only bear it ; that she would surely be able to bear it after she had become accustomed to it ; that she had come all that distance for electrical treatment only, as she could have been operated upon nearer home ; and, above all, she had heard so much of the

miseries of an artificial menopause in young women that she refused to be operated on until I had tried for two months to help her with Apostoli's treatment. At the end of that time, if there was no improvement, she would consent to an operation, provided the danger of it would be only slight.

She was kept in bed and had hot douches and tampons, and finally, by seizing the anterior lip of the cervix and drawing it down, I was able to introduce the sound five inches upward, forward, and a little to the left. She was somewhat swollen after each examination, and after this one a yellow discharge appeared, which, however, did not last long. From August 29th to September 27th she received ten applications of the galvanic current, positive intrauterine, beginning with fifty and gradually increasing at each séance till one hundred and fifty milampères were given. During the first five applications it was necessary to seize the cervix with the bullet forceps and draw it down in order to introduce the platinum sound, but after that it went in quite easily, owing to the tumor, which was blocking up the entrance, having considerably decreased in size. The tumor, instead of reaching to the umbilicus, had shrunk to half-way between the latter point and the pubis, which could be easily demonstrated through the abdominal wall. There was also a very marked improvement in her general health; she stated that she had not felt so well for years. She developed a splendid appetite, her bowels became regular, and instead of being obliged to sit down and rest after a walk of two blocks, as she had to do the week she arrived, she was able to take walks of a mile without fatigue. About this time, also, the pain and tenderness, which she had had especially severe in her left side, gradually disappeared. During the first five applications the passage of the sound caused some bleeding, but during the next five the sound came out as clean as it entered. Strict antiseptic precautions were employed throughout the treatment, hands and instruments were sterilized, and the patient received a hot bichloride douche before each treatment and a bichloride tampon afterward.

From September 27th to October 29th the patient received sixteen more applications, generally of one hundred and fifty milampères, each lasting five to ten minutes. By this time the uterus had shrunk to below the level of the pubis and the patient could take walks of two or three miles without fatigue, and her cheeks, which had been very pale before the treatment, now became quite rosy. The applications were con-

tinued right through the menstrual periods, contrary to my usual custom, but the patient was most anxious to get home as soon as possible, for which reason also they were given every second day instead of twice a week. The first period after the treatment began lasted only four days and the second hardly three. Although it was her intention to remain three months, yet at the end of two she felt so well that she wrote home that she was completely cured, and soon after she prevailed upon me to allow her to depart. I have since received most satisfactory accounts of her, not only from her husband and herself, but also from one of the physicians who has seen her since. If she had remained another month, during which she could have received ten or fifteen more treatments, I firmly believe that I could have reported her case as an absolute disappearance of the tumor by electrical treatment. As it is, I can only truly say that her tumor has decreased from the level of the umbilicus to below the level of the pubis, and that the vaginal fornices, which were filled before by the pushed-over uterus on the right and by the tumor on the left, were empty and free. I may also state my conviction that the thickening of the uterine wall the size of a bantam's egg, but not so defined as that, will continue to be carried away by that wonderful process of involution, which has been so stimulated to activity by the electric current that the sound, which entered five inches at the beginning, only entered three when the treatment terminated.

This case has been stated without any exaggeration in any particular, and yet there may be some so sceptical as to doubt the accuracy of the report. If there are any such and they care to verify it, I feel sure that any of the physicians above mentioned would be willing, in the cause of truth and science, to reply to any inquiries. The patient herself is so grateful that she has asked me to refer inquirers to her, but her very enthusiasm debars her to some extent from being an impartial witness. As far as my testimony is concerned, it must be remembered that I would far rather any day remove a fibroid by the knife than undertake the treatment by electricity, and I feel that the cure of a case by the latter means is positively injurious to my reputation as an abdominal surgeon. Such being the case, it is rather a duty than a pleasure to report this experience, and I only do so in the cause of truth.

CORRESPONDENCE.

EARLY HUMAN EMBRYOS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—During the last ten years I have appealed to physicians from time to time to send me the human embryos which fell into their hands, and have in this way procured some very valuable specimens. These specimens have been cut into sections and are now being modelled and studied very carefully. Yet a number of important stages are still wanting, and I therefore ask through your column that physicians send me any material which they may obtain.

The best method to preserve human ova is to place the unopened ovum, without handling and as soon as possible, in strong alcohol. By this method the embryo within is well hardened for future microscopic study.

It is very injurious to wrap these delicate specimens in cotton before sending them by mail or express. A perfect method is to place the preserved specimen in a bottle filled completely with alcohol, thus imitating the condition of a fetus *in utero*. If there be no air or cotton in the bottle it is almost impossible to injure the embryo by shaking it.

Very sincerely yours,

FRANKLIN P. MALL, *Professor of Anatomy.*

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.,

January 19th, 1897.

TRANSACTIONS OF THE OBSTETRICAL
SOCIETY OF LONDON.

Meeting of October 11th, 1896.

The President, F. H. CHAMPNEYS, M.A., M.D., in the Chair.

Specimens.—DR. TATE: A tubo-ovarian abscess. DR. POLLOCK: Fetus papyraceus. MR. ALBAN DORAN: An unreported case of primary cancer of the Fallopian tubes in 1847, with notes on primary tubal cancer. In a MS. Atlas of Patho-

logical Drawings recently presented to the library of the College of Surgeons by Dr. Renaud, of Manchester, is a drawing of a case of cancer of the tubes and ovaries, dated November, 1847. The uterus was free, it appears, from malignant disease; the further history has been lost. The figure represents the disease as far advanced in one tube whilst the ovaries remain small. This is the condition found in primary cancer of the tubes described within the last ten years. Mr. Doran notes a source of fallacy. The large tube may be a hydrosalpinx into which cancer has extended from a relatively small ovary, as in the case of Winter and Fabricius. Orthmann has published a useful summary of cases of cancer of the tube related by the older writers of this century. Many observers, instead of analyzing each case on its merits, seem to have worked with the fixed idea that cancer of the tube must always be secondary. Recent investigations tend to prove that primary cancer is more frequent in the tube than is commonly supposed.

DR. ARTHUR H. N. LEWERS read a paper on

A CASE OF DOUBLE UTERUS WITH DOUBLE HEMATOMETRA
AND COMPLETE ABSENCE OF THE VAGINA.

The author relates a case of a girl *æt.* 17 who had never menstruated. She was led to seek advice on account of severe pain in the hypogastric region and the lower part of the back. In November, 1893, careful examination under anesthesia showed that the vagina was imperforate, and per rectum that there was a uterus, perhaps a little larger than normal in a virgin of 17, but not much larger. There being no positive evidence of distension, it was decided to watch the case. The patient was kept under observation for more than two years. Ultimately examination showed that the uterus was definitely enlarged, and it was then decided to operate. Full details of the operation, performed on January 2d, 1896, appear in the paper. There was *complete* absence of the vagina. There was a double uterus, each half of which was distended by retained menstrual fluid. The subsequent progress of the case was satisfactory. The patient was seen in September, 1896. She had menstruated regularly and was quite free from pain. The only difficulty was to keep the vagina open. The small ring pessary she was wearing was found, after being in three months, to some extent incarcerated by granulation tissue, and an anesthetic had to be given in order to remove it. It seems likely that by changing the pessary rather more frequently than usual, perhaps once a month instead of once in three months, this difficulty may be avoided in future.

The question of a preliminary abdominal section in dealing with such cases is discussed in the paper, and, though it was not done in the present case, it appears to the author, on the whole, to be the right course to adopt.

THE PRESIDENT doubted whether Dr. Lewers ought to call

the fold surrounding each of the depressions described a hymen. He was familiar with the appearance as figured, and had himself figured something very like it in a case of exstroversion of the bladder in a former volume of St. Bartholomew's Hospital Reports. These duct-like openings he had also seen more than once in other deformities of the genital organs, and in at least one case of vaginal transverse septum with double uterus above but not continuous with it. He regarded them as the stranded distal extremities of Müller's ducts. With regard to the treatment of the ordinary retention of menses, he did not follow the practice of Matthews Duncan, but personally washed out the fluid once for all, believing that this was the safer course. With regard to the manufacture of a new vagina, he had recently had a case in which the whole vagina except the actual fornices was absent. He dissected, as Dr. Lewers had done, and then stretched the skin to the fornices. The result had been good so far, but all the attempts to make a satisfactory canal merely by burrowing through cellular tissue and keeping it open with bougies, which he knew of, had failed, and he did not think a vagina could be satisfactorily made in this way.

DR. AMAND ROUTH narrated the case of a girl æt. 21 who had painful menstrual molimina with amenorrhea. He had treated his case as the author had done, finding great difficulty in keeping the vagina patent. He did not think there was any need to open the abdomen to decide whether hematosalpinx was present, that being discoverable by recto-abdominal palpation, but he believed that if the vagina could not be kept patent and menstruation without exit persisted the proper treatment was to remove the appendages to arrest the function altogether.

DR. CULLINGWORTH said that he quite agreed with Dr. A. Routh in thinking that abdominal section might be a justifiable operation for other reasons than those alluded to by the author, in certain cases of menstrual retention in which the vagina or a large part of it was absent. As the author's case showed, and as was proved by the experience of every one who had had similar cases to deal with, an artificial vagina was very difficult to keep open, and the accumulation was apt to recur. Where this happened he thought it would be good practice to remove the ovaries with a view to the arrest of menstruation. He illustrated his remarks by a case in which fatal septicemia had followed as the result of a rectal puncture. He believed that, notwithstanding the introduction of antiseptics, there was still danger in attempting to hasten the evacuation of the fluid by abdominal pressure or by washing out the cavity. From the nature of the fluid it was impossible for the evacuation to be completed at one sitting, and therefore it was better to leave it to be gradually accomplished by the powers of Nature. No fluid was more susceptible to the changes of decomposition than effused blood, and he personally always felt that his patient was safer when he had avoided all manipulations that involved the risk of introducing air or water, or even chemical solutions, into the retention sac.

DR. HERMAN said that the probability of hematosalpinx with retained menses varied with the site of the atresia. When there was a septum low down in the vagina (the condition commonly spoken of as imperforate hymen), the blood was usually retained in the vagina without distension of the uterus, much less of the tube; but when the atresia was high up, so that the uterus became distended, hematosalpinx was more frequent. He agreed with the late Dr. Matthews Duncan that washing out after opening a cavity containing retained menses was bad practice. He had himself lost only one such case. In that patient the vagina, without his instructions and against his wish, was washed out and fatal peritonitis followed.

DR. SPENCER thought that the case described was one of great interest and that the remarks made by the previous speakers were very instructive. He agreed with Dr. Herman that the difficulty and danger of the treatment of retention of menses depended chiefly upon the seat of the obstruction, and also upon the presence or absence of hematosalpinx. In Dr. Lewers' case, if the new vagina could be kept patent, he had no doubt that the treatment adopted was the proper one. But if the passage closed it would, he thought, indicate abdominal section and the removal of the uterus and appendages as the proper treatment for these rare and difficult cases.

MR. ALBAN DORAN dwelt upon the difficulties of determining the precise nature of a malformation of the uterus during an abdominal section. It was easy to make out uterus bicornis or hematometra or hematosalpinx by dissection, but an operator could not make such a dissection. He related a case illustrating this difficulty.

DR. MACLEAN referred to two cases of retained menses which he had had opportunity of observing. In the first, where the atresia existed in the lower half of the vagina only, treatment was easy and successful. In the other case the atresia was present from hymen to os uteri and the uterus was distended to fetal-head size. Much difficulty was experienced in keeping the canal patent. Finally, after much local treatment, the abdomen was opened and the left ovary and tube removed. It was found impossible to remove the entire right appendages. The result of this operation was unsatisfactory, and finally abdominal hysterectomy was performed with complete cure of the patient.

Meeting of November 4th, 1896.

The President, F. H. CHAMPNEYS, M.A., M.D., in the Chair.

Specimens.—DR. WILLIAM DUNCAN: Five specimens of uterine fibroids removed by intraperitoneal method. DR. MACNAUGHTON JONES: 1, Glass retractors for celiotomy; 2, A new uterine reposer.

DR. THOMAS G. STEVENS presented

A CASE OF COMPLETELY CLEFT SPINE ASSOCIATED WITH AN
UNUSUAL VISCERAL MALFORMATION IN AN
ANENCEPHALIC FETUS.

The specimen was the result of a labor induced on account of a watery, blood-stained discharge which had persisted for some days. The fetus presented by the feet and was delivered by traction. There was no history of maternal impression. The fetus is a female of about eight months' growth, and presents a frog-like appearance on account of the absence of neck and cranium and the upwardly turned face. It is well nourished and fat, especially the limbs. The face and features are naturally formed; the ears normal in shape, the external meatus being present and patent. The cranium, with the exception of the base, is absent. Hair is present along the edge of the basis cranii. The chest is prominent, with well-marked mammary elevations; the neck is absent, the integuments being continued straight down from the face to the chest in front and the shoulders laterally. The umbilicus is situated very low down on the abdomen with a piece of healthy cord attached. Below the umbilicus and continuous with it is a rough, irregular elevation, an extroverted bladder, with the two orifices of the ureters to be seen at the lower angle. On either side of the ureteric orifices are imperfectly formed elevations representing labia majora and minora. Between the labia minora the hymen, perforated with three holes, bulges. Just behind the hymen is the anus, a very small opening hidden by a valve of skin. A complete account of the other anatomical peculiarities was described by the author with the exhibition of microscopic slides.

DR. EDEN read a paper on

THE STRUCTURE OF THE RIPE PLACENTA, AND THE CHANGES
WHICH OCCUR IN PLACENTÆ RETAINED IN UTERO
AFTER THE DEATH OF THE FETUS.

The paper was illustrated with a large number of microscopic sections and lantern slides. The marked structural alterations which the placenta undergoes during the last two months of gestation were described at length, and it was pointed out that those changes had frequently been described as pathological, although in reality they were merely senile in character. Two sets of changes were described as occurring in the retained placenta—primary changes associated with the morbid condition which led to the death of the ovum, and secondary changes following upon the death of the villi, *i.e.*, the arrest of the circulation through them. The secondary changes were summed up as follows: 1. Necrosis of the following structures, commencing immediately upon the death of the fetus: (*a*) the body of the fetus, (*b*) the umbilical cord, (*c*) the amnion, (*d*) the extraplacental chorion and decidua vera. 2. Gradual arrest of the maternal circulation through the placenta by thrombosis of the intervillous spaces. 3. Necrosis of the placental chorion as it becomes shut off from the maternal

circulation. 4. Fatty and calcareous degeneration of the necrosing tissues.

DR. PETER HORROCKS asked if the author's observation had led him to any conclusions with regard to the manner in which the placenta received its nutrition. With the exception of the yolk in the ovum, which supplied a certain amount of nutrition it was quite obvious that the source of the growth of the child and its coverings, including the placenta, was the maternal blood; but considering the intimate union between the villi of the chorion and the maternal tissues, was it not possible that the maternal blood might supply the necessary food directly? That is to say, instead of the requisite food stuffs being absorbed into the fetal blood and then circulated through the placenta for its nutrition, was it not possible for the placental tissue to take up what it required for its own growth directly from the maternal blood?

DR. AMAND ROUTH inquired whether the author meant to imply that the degenerative changes in the full-term placenta facilitated its detachment during the third stage of labor. If so, how did he explain the similar easy detachment when labor was induced at an earlier period? He also asked if the author would lay it down as an absolute rule that blood extravasated into the placental structure never became organized. Did it not become organized in apoplectic ova and fleshy moles?

DR. DAKIN asked if the author considered the presence of simple cysts in the placenta at term to be an abnormality. Cysts were not very uncommon, occurring always, in his experience, in the middle of firm masses resembling those Dr. Eden had described as infarcts and containing clear or turbid serum.

MR. BELLAMY GARDNER said that an interesting clinical fact bearing upon Dr. Eden's demonstration of the vascular degeneration of the placenta at full term was shown by the absence of appreciable effect upon the child from the anesthetic inhaled by the mother during parturition.

DR. EDEN in reply said that it was always important that histological work should be reviewed from the standpoint of clinical experience, and he was therefore glad of the criticisms which had been passed by the various Fellows. In reply to Dr. Horrocks he said that the case of vesicular mole was so peculiar that no conclusions could be drawn from it: regarding the normal chorion, without actual demonstration of the fact we ought not to adopt the view that normal villi might develop or proliferate after the death of the fetus. Up to the present time no satisfactory anatomical evidence of such growth had ever been advanced. Some years ago the statement was freely made that the extrauterine placenta continued to grow after the death of the fetus, but it had since been proved that the increase in size of the placenta observed in this condition was due, not to growth, but to hemorrhage into its substance. The instances of discrepancy between the size of the fetus and that of the placenta might have been due to placental hypertrophy, and no conclusions could be drawn in such cases.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, May 1st, 1896.

The President, GEORGE BYRD HARRISON, M.D., in the Chair.

DR. I. S. STONE presented a specimen of

CYSTIC DEGENERATION OF THE OMENTUM.

DR. J. FOSTER SCOTT said he thought the cysts were harmless and that they might as well have been let alone.

DR. A. F. A. KING asked Dr. Stone from what normal structure the cysts were developed.

DR. STONE said from the glands in the omentum; they were really peritoneal cysts.

DR. J. WESLEY BOVÉE presented a

PAPILLOMATOUS CYST OF THE LEFT OVARY,

and asked Dr. Stone to state the condition he found when he was called to see the case.

DR. I. S. STONE said that when the resident physician called his attention to the critical condition of the patient he found her in a state of collapse from hemorrhage; this was some time after the operation. He at once and quickly opened the abdomen, but it was of no avail, as the hemorrhage had been most profuse and the woman was practically dead. He observed that there were a large number of arteries in the pedicle. He criticised the method of ligating the pedicle. It should have been more thoroughly done. The number of perforations should have been greater in order to secure all of the vessels.

DR. H. D. FRY said that hemorrhage after operations was the cause of many deaths, hence the necessity for a number of ligatures carefully applied. He thought it advisable to ligate each artery separately and then secure the whole pedicle by a sort of quilted ligature.

DR. FRANCIS SMITH NASH asked Dr. Bovée how much tissue there was between the ligature and the excision.

DR. J. WESLEY BOVÉE said that before closing the abdominal wound he poured about two quarts of clear water into the cavity for pressure purposes. This doubtless made the amount of fluid found in the cavity greater than the actual amount of blood effused. In ligating he clamped the pedicle with forceps before transfixing it. He agreed with Dr. Stone that the ligation was insufficient. He should have used a chain suture rather than simply transfixing. He agreed with Dr. Fry as to

the wisdom of ligating each artery. The ligature was placed from one-half to three-quarters of an inch from the end of the stump.

DR. JOHN VAN RENSSELAER read a paper entitled

VENESECTION AND SALINE INFUSION IN THE TREATMENT OF
UREMIA.¹

DR. H. L. E. JOHNSON said the treatment recommended was interesting and new. The results obtained were gratifying and bore out the writer's theories.

DR. WILLIAM P. CARR asked Dr. Van Rensselaer if he had seen any relapses after that method of treatment. Patients having had one attack were liable to others.

DR. I. S. STONE said he was glad to hear some one favor bleeding. He said he had a friend who bled all his eclamptic cases with beneficial results. Prompt action was necessary in such cases, and diluting the blood was a proper procedure.

DR. J. W. BOVÉE said that in uremia complicating puerperal cases in plethoric women bleeding was demanded, and if the patient was weak the salt solution might be introduced at the same time that venesection was going on. Diluting the poison rendered it less harmful. There was this objection—transfusion increased arterial tension, which it was desirable to avoid.

DR. SAMUEL S. ADAMS said that transfusion could not do any harm. In uremic convulsions much good might be accomplished in the manner suggested by the writer of the paper.

DR. WILLIAM M. SPRIGG said that the *rationale* of the paper was correct. Diluting the blood in uremic cases was wise. Venesection was like the hemorrhage after rapid delivery; it relieved tension.

DR. HENRY D. FRY said he was misled by the title of the paper. He thought its reference was to puerperal eclampsia. We could not reason that because venesection and infusion were beneficial in ordinary cases, therefore they would be in puerperal eclampsia. Since blood-letting had been abandoned in puerperal cases the mortality was less. How the infusion of saline solutions may influence them remains to be seen. In pregnancy the blood is hydremic, and, if this theory of Traube-Rosenstein is correct, the infusion of saline solutions would increase that condition and render more liable serous effusion in the brain, and arterial pressure would be raised.

DR. WILLIAM P. CARR said the blood in chronic nephritis was like that in pregnancy. If transfusion did good in one it probably would in the other. The question of blood pressure was not of so much importance; that could be controlled with drugs, such as nitrite of amyl. Venesection was only temporary in its influence on blood pressure. Fluid taken into the stomach would quickly increase tension for a short time only. Uremic symptoms were due to poisoning of the blood, though

¹ See original article, p. 224.

some chemists may not have found the substance. The system becomes accustomed to the presence of urea until the maximum is reached, when an explosion occurs. It was rational to bleed and transfuse.

DR. A. F. A. KING asked Dr. Van Rensselaer if the treatment he had described increased the quantity of urine, and, having received an affirmative reply, Dr. King proceeded to remark that he had been much interested in a paper read before the American Gynecological Society in May, 1895, by Dr. James H. Etheridge, of Chicago, in which he (Dr. Etheridge) maintained that many of the disorders of the pelvic organs in women were largely due to deficient renal excretion (even though the kidneys themselves were free from organic disease), and were much benefited and sometimes cured by diuretics. Dr. Etheridge had called attention to the intimate relation existing between the kidneys and genital organs, as evidenced by the renal troubles of pregnancy, and by the fact that the two sets of organs arose embryologically from the same source—viz., the mesoblast. Dr. King said he believed Dr. Etheridge was the first to properly accentuate the importance of renal insufficiency as a factor in the aggravation of pelvic diseases: and if the present views of Dr. Etheridge could be maintained by future experience, it would inaugurate a new era in gynecology and save many cases from surgical operations.

Dr. King's attention had been first called to this matter, before reading the paper of Dr. Etheridge, by a patient suffering from chronic endometritis, who declared she was "perfectly well," all aches, pains, and vaginal discharge having abruptly disappeared, the change being accounted for only by an accidental profuse diuresis of three days' duration, with the cessation of which, however, the old troubles returned. Dr. King thought that much of the benefit obtained in chronic pelvic cases in women, by visiting fashionable spas, was due to the diuretic waters the patients drank so religiously, while at home many women actually drank no water at all. He had known cases in which women had declared they had not drunk one glass of water in six months. He believed if, besides directing treatment to relieve "renal insufficiency," care were also taken, by suitable remedies, to relieve what might be called "hepatic and intestinal insufficiency," the occupation of the modern surgical gynecologist would be largely curtailed and many women would recover without surgical interference.

DR. GEORGE N. ACKER said that Dr. W. W. Johnston, several years ago, had read a paper before the Society on the same subject.

DR. JOHN VAN RENSSELAER said the treatment recommended had acted well in a number of cases in which coma existed. He said to Dr. Carr that in several cases in which the treatment had been employed relapses occurred. In many cases the patient was quickly restored to consciousness. Bleeding diluted the blood and in that way removed the poison.

Stated Meeting, Friday, May 15th, 1896.

Vice-President GEORGE N. ACKER, M D., *in the Chair.*

DR. HENRY D. FRY presented

UTERUS, TUBES, AND OVARIES REMOVED FOR ABSCESSSES IN BOTH CORNUA AND BROAD LIGAMENT, AND SALPINGITIS.

DR. JOSEPH TABER JOHNSON said the only other operation that might have been done in this case was one similar to Baer's. The tendency now is to leave the uterus entirely, or as much of it as possible after thorough curetting; and opinion was in favor of removal through the vagina, but in this case it could not have been done on account of adhesions. If it could be determined that no adhesions existed the vaginal operation was the best.

DR. GEORGE N. ACKER asked what effect removal of the uterus would have.

DR. JOHNSON, continuing, said it created an artificial menopause, and sometimes an unpleasant effect on the bladder, and it was said to diminish sexual pleasure on account of shortening the vagina.

DR. J. WESLEY BOVÉE presented a

LARGE OVARIAN HEMATOMA AND DOUBLE PYOSALPINX

removed from a patient the day before at Columbia Hospital. The history of the case was as follows:

Mrs. K., 23 years old, married, white, was admitted to that institution May 9th, 1896, suffering from pain in the lower part of the abdomen that had continued for the last two weeks. After a normal labor seven years ago she had had her only child, and on April 13th last she had an abortion, attributed to a fall. She had missed but one period, and that only two weeks before. Her menses began at 12 years of age, were regular, lasted ten days, profuse, painful after the second day. She was flowing when she entered the hospital. An examination revealed a lacerated cervix; the uterus in front and fixed, a fluctuating mass on its right, a smaller one on its left.

An abdominal section was done May 14th, and a pair of pus tubes were removed with a large right ovarian hematoma. This latter was about ten centimetres in diameter, and the wall of the hematoma is distinctly shown. An attempt to remove the tubes without rupture showed how impossible this is in some cases, for the rupture occurred when the tension on the sacs was at a minimum and during the separation of adhesions between them and the bowel in Douglas' pouch. The adhesions being severe and the pus escaping, an incision was made behind the uterus into the vagina; the cavity was washed out through this opening and gauze drainage established in the same direction. The abdominal wound was closed by buried kangaroo tendon.

DR. MIDDLETON F. CUTHBERT read an essay entitled

GENERAL MANAGEMENT OF CASES DURING PREGNANCY
AND CONFINEMENT.¹

DR. SAMUEL S. ADAMS said the close supervision of the patient, as recommended, was impracticable. In carrying out the plan suggested the physician would subject himself to the charge of making too many visits, and make the cost too great for the large majority of people, or he must give away much of his time. General good advice should be given and the urine should be examined occasionally, but, unless for some special reason, it was not necessary to be done every day. He agreed with the essayist that emollient applications only were to be made to the nipples; trouble was often caused by the use of astringents. As to travelling, he had a patient who took a sea voyage at the eighth month without inconvenience. Regarding copulation during pregnancy, he knew of a mother who thought that too much of it was the cause of masturbation in her child. The woman should be encouraged to live a natural life, to exercise in the open air, and to eat good food. Under such conditions the patient will be in good condition for parturition. If placenta previa exists it may be discovered soon enough. Douches are to be used only for good reason. Sanitary pads of cotton are cleanly and comfortable. The hair pad, covered with a rubber cloth or bed sheet, is most admirable. The diet of the puerperal woman is often too much restricted. He allowed substantial food after the second day.

DR. THOMAS C. SMITH said the objection to Dr. Adams' hair pad was that the parturient woman could not be kept upon it. He thought that some of the suggestions contained in the essay were fraught with more danger than good. Placenta previa was not always easy to recognize. It was not necessary to examine the urine every day, and to do so was to make the woman feel that she had some serious disease. He said that if the doctors were placed upon their honor it would be found that not five per cent of them made these examinations of the urine. And, again, not three per cent of pregnant women have any kidney complication. If you do find kidney disease, what are you going to do? The treatment of the nipples recommended was in conformity with his views. The tendency was to do too much for pregnant women. A very critical examination into the woman's history made her think too much about herself.

DR. JOSEPH TABER JOHNSON said that excessive vomiting was perplexing to deal with. He detailed a case in which premature delivery was effected, but it was delayed too long because of the religious belief of the parties concerned. Earlier interference might have saved the woman's life. If premature delivery is to be of any avail it must be accomplished in time, before emaciation, weakness of heart, general debility, etc.,

¹ See original article, p. 229.

render success less probable. It is a nice point to determine when the limit of endurance has been reached. The same is true as to albuminuria.

DR. VON EZDORF (a visitor) said, as to the measurements of the pelvis in pregnant women, that if the oblique diameter was twenty to twenty-one centimetres no vaginal examination was necessary. In a series of fifty cases at Columbia Hospital no douches were used and there were no complications. The douche was not necessary if no odor was present.

DR. HENRY D. FRY said that an important point in the early months of pregnancy is to examine all cases complaining of pelvic pain, bearing-down sensations, tenesmus of the bladder, etc., as not infrequently the pregnancy takes place in a retrodisplaced uterus. In the majority of cases Nature is equal to the emergency and the displaced organ is brought into proper position. In some cases adhesions do not yield and the danger is of incarceration and abortion. The complication in these graver cases is nearly always overcome by manipulation under full anesthesia. In a recent case the displacement was irreducible, and he had opened the abdomen, broken up the adhesions, and fastened the uterus forward by ventral fixation. The case did well afterward and pregnancy was not disturbed.

The question has been raised, when should we interrupt pregnancy to relieve pernicious vomiting? It is a very delicate point to decide, and in five or six cases he had seen in consultation the delay had cost the lives of the patients. Only two days ago he had seen such a case. The patient was very low with a pulse of 150. He emptied the uterus at once, but the patient was past hope and died in thirty-six hours.

There were two symptoms we must watch for, and, when detected, action cannot be postponed long in safety. They were febrile reaction and mental hallucinations. Sudden cessation of vomiting and the appearance of these symptoms indicated a most alarming condition. If we decide to act he could not advocate the method of Dr. Johnson. Simply rupturing the membranes will accomplish little good, and at so early a stage of pregnancy the uterus would probably not respond at all. If interference is necessary the uterus could be dilated and cleaned out in fifteen minutes.

He thought Dr. Smith was entirely too reckless in his statement regarding the little importance to be given to urinary examinations in pregnancy, and such views were productive of much harm. During the past year and a half he had seen in consultation the wives of three practising physicians, threatened with eclampsia in one case and having it in two, and in none of them had the urine been examined.

Symptoms of toxemia are often absent until the explosion occurs, and it is not safe to examine for trouble only in those who offer some indications of kidney trouble. If the complication occurs much can be done by proper treatment to avert eclampsia.

DR. J. W. BOVÉE said he believed in the frequent examina-

tion of the urine of pregnant women. It was his custom to examine it every two weeks, especially in primiparæ. Later on he examined it every week, and during the last month of pregnancy every three days, if he could get the urine. If the solids eliminated are in normal quantity the albumin does not make so much difference. He believed in pelvimetry. The nipples should be kept clean. He said Dr. Fry took an advanced position in performing ventral fixation during pregnancy. Dr. Bovée preferred shortening the round ligaments and the use of a pessary. He thought Dr. Fry would have trouble with his case, probably an abortion. As to diet, he said he gave his patients a piece of beefsteak or a chop in a few hours after delivery. As to pads, he said anything under the patient would be inconvenient. In cases where gonorrhea existed he gave an antiseptic douche before delivery. In cases of septic infection he washed out the uterus at once.

DR. SAMUEL S. ADAMS said the hair pad to which he referred was two and a half feet by three feet, and others were much larger for adults, with flanges and a rubber covering, the whole being placed under the sheet. The hair absorbed any discharges and was easily cleansed. It was used during the puerperium and not during labor.

DR. J. W. BOVÉE said the pads should be changed often enough not to require the hair pad.

DR. HENRY D. FRY said that limiting the diet of pregnant women to non-nitrogenous substances was nonsense. Women should have good diet. It was a fact that emaciated women have large babies. There was an old saying that a mother loses a tooth for each child. This should be obviated by good, nutritious diet. Out of eighteen hundred deliveries one woman dies from hemorrhage. A lemon and gauze should always be at hand. He said he had never seen the lemon fail to check the hemorrhage. Where there had been much loss of blood, transfusion acted most satisfactorily.

DR. THOMAS C. SMITH reiterated his statement that frequent examinations of the urine were unnecessary unless symptoms demanded them.

DR. JOSEPH TABER JOHNSON said of Dr. Fry's criticism of his method of producing premature labor that the woman was so far gone that he could not use other means. As to diet, he said a patient of his had arranged for herself a bill of fare that would insure her an easy labor; but she had twenty-four hours of suffering, and he had finally to deliver her with forceps. Another one thought she could produce a higher grade of offspring by surrounding herself with beautiful things and listening to sweet music and enchanting poetry; but she brought forth a puny, inferior child. Diet has very little influence on the child, but children of lust and drunkenness would be badly influenced morally.

DR. M. F. CUTHBERT said there should be no difficulty in cases where it was necessary to make an examination. The woman might come to the doctor's office. There could be no

question as to the advisability of examining the urine frequently. It was not necessary for him to state what should be done in all pregnant cases, but much service could be rendered the woman. Absorbent cotton made as good a pad as could be used. Placenta previa could sometimes be determined before the cervix was much dilated. It was much better to make a thorough examination and know the condition than to be unexpectedly confronted with difficulties. He detailed a case in which the urine had been examined up to a week before delivery and no albumin was found; some time afterward, when labor came on, she had a convulsion; her urine was then examined and found to contain albumin. Had he known this before he might have hastened delivery by an early application of forceps. The diet of the puerperal woman should be liberal.

REVIEWS.

FUNCTIONAL DISORDERS OF THE NERVOUS SYSTEM IN WOMEN. By T. J. MCGILLICUDDY, A.M., M.D., Consulting Physician to the Italian Hospital. New York; Surgeon in charge of the New York Mothers' Home Maternity Hospital, etc., etc. Illustrated by 45 wood engravings and 2 chromolithographic plates. Pp. 367. New York: William Wood & Company, 1897.

Although somewhat immature, this book is exceedingly interesting. It describes in a plain and common-sense way the functional disorders of the nervous system in women, which, as the author correctly says, "are not usually found in hospitals, but are seen frequently in private practice, and very often in the upper strata of society." The constant irritation of the nerve centres through the modern method of living results in their loss of balance and equilibrium. Sensational books and plays, unwholesome highly-seasoned food, and the struggle for gain and position are the cause of a series of complaints which clamor for relief and cure. These disorders the author has arranged in a systematic manner, and, although he offers not many new suggestions, he has collected a large amount of valuable material, which he presents to us in a concise and readable form. What has been long apparent to the experienced and observing physician is emphasized by this book—namely, that ovarian pain does not necessarily mean diseased ovaries; that indigestion or cardiac sensations are not concomitant with pathological lesions in these organs. Rational therapy is accorded a position *versus* irrational mutilating operations and narrow-minded, short-sighted medication. A therapy which attacks the cause and thus cures the result is the one advocated. Space forbids a detailed discussion of the various chapters, and the presentation of fragments would be unjust to both author and book. We trust, however, that the above hints may serve to induce many to peruse this work, which is of the greatest

interest to the specialist, although it is mainly addressed to the general practitioner, from whose standpoint it is written.

J. R.

DISEASES OF THE STOMACH. A Text Book for Practitioners and Students. By MAX EINHORN, M.D., Instructor in Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Dispensary. Pp. 496. New York: William Wood & Company, 1896.

This is the first original work published in America which embodies the great advances made in this department of medicine. It treats in a scientific and yet very practical way the most recent methods of diagnosis, diet, and treatment. There are numerous original drawings of apparatus and microscopical specimens; the diction is clear and forcible, the type and printing good.

THE DISEASES OF THE MALE URETHRA. By R. W. STEWART, M.D., M.R.C.S., Surgeon to Mercy Hospital, Pittsburg. Post octavo. Pp. 229. Illustrated by numerous wood engravings. New York: William Wood & Company, 1896.

The author mainly discusses the diseases of the male urethra which are either inflammatory in character or the result of inflammation. To these is appended a brief description of the inflammatory diseases of the communicating glands of the urethra. Both pathology and treatment are in line with modern conceptions, but the author only presents and indorses methods of treatment which have stood the test of time: thus it cannot fail to be a safe and welcome guide.

J. R.

BOOKS RECEIVED.

TRANSACTIONS OF THE EDINBURGH OBSTETRICAL SOCIETY. Vol. XXI. Session 1895-96. With General Index to Vols. I. to XXI. Edinburgh: Oliver & Boyd, 1896.

MANUEL THÉORIQUE ET PRATIQUE D'ACCOUCHEMENTS. Par le DR. ADRIEN POZZI, Professeur à l'École de Médecine de Rheims. Avec 138 figures dans le texte. Paris: Ancienne Librairie Germer Baillière et Cie. Felix Alcan, Editeur, 108 Boulevard Saint-Germain, 1897.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Vol. VII. Diseases of the Respiratory Organs and Blood and Functional Sexual Disorders. Pp. 796. New York: William Wood & Company, 1896.

THE DISEASES OF INFANCY AND CHILDHOOD. For the Use of Students and Practitioners of Medicine. By L. EMMETT HOLT, A.M., M.D., Professor of Diseases of Children in the New York Polyclinic, etc. With 204 illustrations, including 7 colored plates. Pp. 1,117. New York: D. Appleton & Company, 1897.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES. By RICHARD C. CABOT, M.D. With colored plates and engravings. Pp. 405. New York: William Wood & Company, 1897.

OVER THE HOOKAH: THE TALES OF A TALKATIVE DOCTOR. By G. FRANK LYBSTON, M.D., Fellow of the Chicago Academy of Medicine, etc. Illustrated. Chicago: Fred. Klein Company, 1896.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY,

IN CHARGE OF THE EDITOR AND DR. JULIUS ROSENBERG.

PEDIATRICS,

IN CHARGE OF DR. A. RAYMOND-SCHROEDER.

OBSTETRICS.

The Therapy of Placenta Previa.—Heil¹⁸ advocates in proper cases, especially when the child is alive, the tamponade of cervical canal with iodoform gauze. Version after Braxton Hicks is indicated: (1) in extreme anemia of the mother—the welfare of the child should not be considered; (2) if the loss of blood has not been large, but the child is dead or the chances are bad of obtaining a living or viable child. In all other cases, if the cervix is not dilated, firm tamponade of the cervical canal is advised.

Hemorrhage from Uterine Inertia.—The treatment of hemorrhage from uterine inertia, as indicated by Bar,¹⁹ includes emptying the uterus by introducing the hand, intrauterine injections of hot water at 45° to 50° C., subcutaneous injections of ergotin or ergotinin, massage of the uterus, tamponade of its cavity, hot applications of all kinds, hypodermatic injections of ether, inhalations of oxygen, injections of caffeine, lowering the head, and intravenous or subcutaneous injections of salt solution. After considering prophylactic measures, E. P. Davis¹⁶ advises as the treatment of secondary puerperal hemorrhage massage of the uterus, a douche of hot sterile water, manual removal of blood clots or retained placenta, tamponade of the uterus, its reposition with the fundus above the brim of the pelvis and anteфлекed, strychnine hypodermatically, ergot by mouth, and subcutaneous injections of salt solution followed by enemata of water and whiskey.

Subinvolution of the Uterus.—T. A. Erck²⁰ urges the necessity of proper after-treatment of abortion for the prevention of subinvolution.

Rupture of the Uterus.—In a case of J. N. Upshur²¹ labor was protracted by extreme rigidity of the cervix. Concealed hemorrhage was not diagnosed, the symptoms being referred to severe attacks of dysentery. After labor a right antero-lateral incomplete rupture of the uterus in its long axis was noted, followed by an intramural abscess which was satisfactorily treated by free curettage, douching with salt solution, and application of hydrogen peroxide. The early and repeated use of camphor upon the breasts absolutely prevented the secretion of milk, though this had been abundant in six previous confinements.

Uterus Duplex ; Rupture of the Pregnant Cornu in the Ninth Month.—Weil.²² The diagnosis was made during life, as a post-mortem examination was not granted; there is, however, hardly any doubt about its correctness. The patient was 23 years old; she had had one miscarriage and was twice delivered at full term. The rupture occurred spontaneously, without any apparent cause. Death took place three hours later.

Retention of the Dead Human Ovum in Utero.—Graefe⁷ collected 59 cases from the current literature, to which 11 of his own cases are added. In part of these careful microscopical examinations were made. These showed that the retained ovum undergoes a retrogressive metamorphosis. While the mucous tissue of the cells changes into more or less dense connective tissue, the syncytium and ectoderm may in part disappear; in other cases an excessive proliferation of these structures has been observed. The author discusses the symptoms, diagnosis, and prognosis, to which, however, he adds nothing new. An early emptying of the uterus is, of course, advised.

Streptococci in the Parturient Vagina.—Vahle³ made bacteriological examinations of the vaginal secretions of thirty pregnant and sixty parturient women. In the former he found, besides other micro-organisms, streptococci three times—twice in pure cultures and once in conjunction with staphylococci. The parturient cases showed the presence of streptococci in twenty-five per cent. These results confirm the assertions of Steffek, Döderlein, Walthard, and others as to the presence of pathogenic bacteria in the vagina of pregnant and parturient women.

Puerperal Sepsis.—T. S. Cullen⁹ describes a case of fatal puerperal sepsis caused by the introduction of a slippery elm tent for the purpose of producing abortion. The symptoms of sepsis appeared on the fifth day and death occurred in twelve hours. The lamellæ of the tent were found to have separated, the edges of the fragments being forced into the contracting uterus.

Is Tympanites Uteri an Indication for the Removal of the Uterus in Partu?—*Raison d'être* for this paper is the well-known case of Cesarean section by Ludwig-Chrobak, which was also reported in THE AMERICAN JOURNAL OF OBSTETRICS. Ahlfeld³ discusses the following questions: 1. Is tympanites uteri during labor an indication for Cesarean section (Porro)? 2. Has the physician the right to perform Cesarean section and remove the uterus to prevent future conception? Ahlfeld answers both questions in the negative. The answer to the first question is that even in the most desperate cases good results are obtained after delivery per vias naturales and subsequent uterine irrigation, for which fifty per cent alcohol is advised. When sepsis is too far advanced, even the Porro operation can accomplish nothing. The second question is answered negatively from an ethical point of view. The Porro operation is considered justifiable only if performed to save life or

health, as in cases of uncontrollable hemorrhage, septic endometritis, osteomalacia, cancer of the uterus, etc.

G. Braun²² reports a case of **Porro operation** performed on account of a large pelvic sarcoma; tympanites uteri was present, and numerous fruitless attempts to deliver the woman outside the clinic preceded the operation. The progress was afebrile and the sutures were removed on the ninth day; the dressing, held in position by adhesive plaster, was renewed. The following day (tenth) the patient complained of abdominal pain and stated she had a sensation as if the abdomen had burst asunder. Inspection showed the abdominal scar open and the distended intestines outside the abdomen. The wound was immediately resutured, but the woman died of septic peritonitis, caused by an entrance of sarcomatous discharge into the abdominal cavity.

Cesarean Section.—Strebel²³ used the material of the Zurich Clinic as a basis for discussing the relative value of Cesarean section, symphyseotomy, premature labor, etc. During the years 1888–1896, 12 Cesarean operations were performed with a mortality of 8.33 per cent; one child was stillborn. Since 1892, when strict asepsis was introduced, eight cases have been operated on without a single death. At the Zurich Clinic Cesarean section is given the preference over the induction of premature labor in cases of absolutely contracted pelvis, since the former operation certainly saves the child and most probably also the mother. When the indication is relative the Cesarean operation is also advisable, but only in hospital practice. The author is no advocate of symphyseotomy.

Béchet²⁴ describes a Cesarean section performed upon a woman with a rachitic, contracted pelvis, who had been in labor three days. Both mother and child were saved. Cesarean section, successful for mother and child, is reported by J. B. De Lee.¹⁰

Symphyseotomy.—Charles Jewett¹⁰ records three symphyseotomies, all followed by good union of the symphysis and resulting in the birth of three living children.

A. Donald²⁵ believes that symphyseotomy, when carefully performed in properly selected cases, is of the greatest value and free from serious risk. He reports three cases with absolutely favorable results to the mother as regards life and function, and to the child. He says that with a normal fetal head the operation should not be performed at term if the true conjugate measures distinctly less than three inches. Other contraindications are a narrow vagina and rigid perineum, a prolonged labor, and previous prolonged efforts at extraction with forceps. Hemorrhage and injuries to the soft parts are to be avoided by slow separation of the bones. Careful extraction, and the insertion previously of a pad of iodoform gauze behind the ends of the pubic bones, obviate the risk of bruising the soft parts between the pubes and the descending head.

Craniotomy.—Six cases of craniotomy by J. B. De Lee²⁶ resulted favorably to the mother. He describes a modification

of the Auvaré cranioclast which he employed in the operation. It is claimed that if craniotomy is properly carried out the maternal mortality should be zero.

Breast Amputation during Labor.—The amputation of a carcinomatous breast during labor, followed by a high forceps delivery by S. W. Lambert, is reported by J. I. Edgerton.²⁷ The axillary glands were left, to be subsequently removed. Mother and child doing well.

Ovariectomy during Pregnancy.—An ovariectomy by Raba-gliati⁸ at the sixth month of pregnancy for malignant adenoma of one ovary was followed on the same day by abortion, the child living two hours. Recurrence was noted three weeks later at the seat of the pedicle and filling Douglas' pouch.

Treatment of Ovarian Tumors during Pregnancy, Labor, and the Puerperium.—Hohl²³ reports five cases and arrives at the following conclusions: 1. During pregnancy ovariectomy should, if possible, be performed in the early months. Premature labor should be favorably considered only in intraligamentous tumors when the operation is presumably difficult or in tumors which are fixed by adhesions. Puncture of the cyst as a therapeutic measure is out of the question. 2. During labor the reposition of the tumor under anesthesia should, if possible, be done. Failing in this, cystic tumors should be aspirated or they may be opened after vaginal incision. Cesarean section is indicated in solid tumors when the child is alive, ovariectomy at the primary operation or after the puerperium. The performance of ovariectomy and the termination of labor per vaginam is not permissible. 3. After a woman has been delivered while having an ovarian tumor, the extirpation of the tumor should be performed at the earliest time possible, certainly not later than the second week of the puerperium.

Uterine Fibroids complicating Pregnancy.—R. Morison¹ gives the histories of three cases of uterine fibroids complicating pregnancy. In two cases abdominal hysterectomy was performed, the cervix in the other being removed by the vaginal route after supravaginal amputation of the uterus through the abdomen. Recovery in all cases with good cicatrices. Guillaume¹¹ also puts on record a case of uterine fibroid complicating pregnancy, treated with success by abdominal hysterectomy.

Obstetric Teaching.—Practical methods of teaching obstetrics are described in detail by J. C. Edgar.²⁷ Especial stress is laid upon the value of courses in which the student actually conducts cases of labor with their preceding and subsequent treatment.

Anencephalic Monster.—The birth of an anencephalic monster is reported by L. Woodruff.²⁸

So-called Intrauterine Fracture of the Leg in which other Osseous Defects were present.—With the aid of Röntgen rays Burmeister⁷ shows that the apparent fracture is due to osseous defects and deformities, a result of a too small

amnion, and which probably occurred before the beginning of ossification. Burmeister believes that Röntgen's discovery will be of great aid in the study of development.

The Frequency and the Most Common Types of Contracted Pelvis observed in Various Countries.—*F. Barnes*²⁹ (London): Among 38,065 pregnant women observed during a period of ten years in the Royal Maternity Hospital in London, the following pelvic anomalies were noted: 150 flat pelvis with a conjugata vera of less than 9.5 centimetres; 45 uniformly contracted pelvis with a conjugata vera of less than 10 centimetres; no osteomalacia. The operations performed during this period were: 74 versions, 196 forceps, 15 craniotomies. Cesarean section was never required, showing that the pelvic contractions were of a minor type. *Forchier* (Lyons and vicinity): The investigations of 120 pelvis in the pathological institute, and the pelvic measurements of 105 women in the Lyons Clinic, lead to the following conclusions: In Lyons and vicinity contracted pelvis are met with in about 21 per cent of cases. A large number of the simply flat pelvis show no trace of rickets, and the abnormal condition is the result of an arrest in development. *Kufferath* (Brussels and Belgium): 1. Malacosteon pelvis and oblique contraction (Naegele) were not met with. The majority of pelvis with conjugata vera of less than 8 centimetres were of a rachitic type; the contraction was asymmetric. 2. The pelvis of dwarfs had a true conjugate of less than 8 centimetres. *Pestalozza* (Florence and Italy): The measurements and the course of labor showed pelvic contraction in 1,444 cases among 7,962 confinements. Of these, 770 pelvis were accurately measured, with the following results: 106 rachitic flat pelvis; 41 uniformly contracted flat rachitic type; 192 uniformly contracted irregularly rachitic type; 236 uniformly contracted; in 50 contraction was due to kyphosis, kyphoscoliosis, uni- or bilateral femoral dislocation, paralysis and atrophy of the lower extremities. Osteomalacia was once observed in the Florence Clinic, and in this case labor terminated without instrumental aid. *Lusk* (New York, America): In the native American pelvic contraction is extremely rare. Those found belong mostly to following types: minor degrees of simple flat pelvis; uniformly contracted pelvis; contraction conditioned by kyphosis or scoliosis. Rachitic contraction is nearly unknown, and osteomalacia does not exist. *Paulik* (Prague, Austria): Pelvic measurements, after a uniform system, showed in 29,615 women: 1,748 flat pelvis = 5.99 per cent—in these the conjugata vera was less than 9.5 centimetres: 570 uniformly contracted pelvis with a conjugata vera of less than 10 centimetres = 1.95 per cent; 41 malacosteon pelvis = 0.14 per cent. Among the flat pelvis 1,348 were of simple flat type, 280 rachitic flat, and 150 rachitic irregularly contracted. *Traub* (Amsterdam, Holland): 816 contracted pelvis, in which accurate measurements were made, are divided: 234 simple flat non-rachitic, conjugata vera 8 to 9.5 centimetres; 3 simple flat

non rachitic with a conjugata vera of less than 8 centimetres; 346 rachitic flat pelves, conjugata vera 8 to 9.5 centimetres; 74 rachitic flat pelves, conjugata vera less than 8 centimetres; 130 uniformly contracted, conjugata vera 9 to 10 centimetres; 29 uniformly contracted, conjugata vera less than 9 centimetres. *Dohrn* (Königsberg, Germany): Pelvic contraction is pretty general throughout the German Empire. The frequency varies between 12 and 18 per cent, but if measurements were more accurately made 20 per cent would be nearer the truth. The rachitic type is most commonly met with. The degree of contraction in rachitic and non-rachitic pelves is not very great. The malacosteon pelvis is rare.

Oxytocic Action of Quinine Sulphate.—Schwab⁸ records two cases illustrating the power of quinine sulphate to increase the strength of feeble uterine contractions during labor. The drug acts within twenty or thirty minutes usually, and should be given in two doses of a half-gramme at an interval of ten minutes. It is indicated when the uterine contractions are inefficient or inertia exists during the dilatation of the cervix, and when the health of mother or child is threatened, especially when the membranes have ruptured and delivery must be hastened.

Deciduoma Malignum.—In giving a summary of deciduoma malignum, H. M. Jones¹ expresses the opinion that the knowledge of the occurrence of this growth should emphasize the necessity for thorough emptying of the uterus when this step is indicated in molar pregnancy.

Obstetrical Keratitis.—Dujardin¹² gives an account of a case of keratitis produced by the use of forceps. Cold applications, atropine, and boric acid washes were employed and recovery was almost complete in eight days. Such cases almost always recover rapidly.

GYNECOLOGY AND ABDOMINAL SURGERY.

Paravaginal Operation.—Schuchardt.³⁷ The author's further development of this operative technique has given the best results. It consists of an incision at the junction of the middle and posterior thirds of the labium majus, extending above to the cecum and posteriorly to the coccyx. The paravaginal tissues are extensively divided, thus transforming the uterus into an organ which, for all practical purposes, is on the surface of the body. The whole field of operation is brought into plain view, the ureters can be seen, so that unintentional injury is excluded. The vagino-perineal wound is closed after the uterus is extirpated, and the convalescence is about the same as in vaginal hysterectomy: the patient can leave the bed two to three weeks after the operation.

Chronic Hyperplastic Endometritis.—Keller⁷ reports two cases observed in young girls 11½ and 13 years old. The profuse flooding was treated by curettement, after which menstru-

ation became normal. The genitals in both cases were fully developed, the cervical canal was large, and in the second case a suspicion of a preceding abortion was entertained. The result of the curettement showed the existence of a fungoid endometritis, which the author believes to be of ovarian origin.

Intrauterine Therapy.—Zepler²⁸ describes a new method of treatment for cases of dysmenorrhea depending upon a stenosis of the cervical canal. It consists of a dilatation with laminaria tents, subsequent curetting and packing, and finally cauterization of the stenosed cervix with the Paquelin cautery. The same therapy is said to be very successful in endometritis, for which repeated tamponing of uterus is also recommended.

Hofmeier²⁸ details a case in which death occurred within twelve hours after an intrauterine injection of a fifty per cent solution of zinc chloride. The patient died with the symptoms of an acute peritonitis, which a subsequent post-mortem showed to be present. A possible escape of the zinc solution into the peritoneal cavity through the tubes could be excluded. [The writer of this abstract observed lately most violent peritoneal irritation following the intrauterine injection of a ten per cent zinc solution. Cervical dilatation and uterine irrigation preceded the injection. Although he has employed this method in a number of cases, this was the only one in which severe symptoms occurred, yet it shows that even the mildest solutions may produce dangerous complications.]

Pathology of Prolapsus.—Winter⁷ differentiates two kinds of prolapsus: one is the result of a relaxation of the peritoneum and ligaments with retroversion and descent of the uterus—through the latter an inversion of the vaginal walls is caused; in the other form the prolapse begins with a relaxation and descent of the vaginal walls. A moderate degree of primary uterine prolapse is usually present. In the treatment of the first form of prolapse vagino- or ventrofixation is to be considered, while in the second form the various plastic operations of the perineum and vagina are indicated. The obliteration of the cystocele is recommended, while the amputation of the cervix should only be performed when a real chronic hypertrophy is present, and not in the apparent elongation.

Uterine Fibroids.—A report of two successful abdominal hysterectomies for uterine fibroid, one complicated by double pyosalpinx, is accompanied by a description of the technique of supravaginal hysterectomy by T. J. Watkins.²⁶ W. H. Baker²⁹ describes an abdominal hysterectomy from which the patient was recovering. The operation was performed for multiple fibroids of the uterus. A broad-ligament cyst was also removed, as well as numerous thin, fibrous sacs filled with clear fluid and apparently free in the peritoneal cavity. In reporting two successful abdominal hysterectomies for uterine fibroids with extraperitoneal treatment of the stump as devised by Senn, Byron Robinson¹⁰ claims as advantages of this treatment that immediate closure of the abdominal cavity when the tumor is removed avoids shock and allows leisurely comple-

tion of the closure after the peritoneum is sutured, that the hemorrhage which may follow can be arrested without opening the peritoneal cavity, and that no ligatures need be left within the latter. M. C. McGannon⁴⁰ describes a successful abdominal hysterectomy for uterine fibroids. A case of Rabagliati⁵ died of shock four days after abdominal hysterectomy for fibromyoma of the uterus. A death is reported, by Fourmeaux,⁶³ from peritonitis after abdomino-vaginal hysterectomy for fibroids with prolapse of the uterus. A description of three cases of diffuse benign adenomyoma is given by T. S. Cullen.⁶ They are usually looked upon as simple myomata before operation. If diagnosed, abdominal hysterectomy is indicated, as the tumor is too intimately united to the uterus to be shelled out. As evidences of benignity the glands are found confined to the new growth, do not show any tendency to invade the muscle; the gland epithelium is only one layer in thickness and preserves its glandular type.

Vaginal Myomectomies.—Thorn.⁷ The vaginal route must be given the preference if it permits the thorough inspection of the operative field. The author resorted to this method in thirty-two cases—that is, in about one-fourth of his cases, fibroid polypi not included. Submucous fibroids should, if possible, be removed through the dilated cervical canal, otherwise colpotomy is advised, which is also indicated in intramural and subserous tumors. In cases where the uterine functions cannot be restored hysterectomy should be performed.

Carcinoma of the Uterus.—W. L. Little⁴¹ reports a fatal case of carcinoma of the cervix in a girl 14 years of age, local examination having been refused until the case became inoperable. In support of the treatment of malignant uterine disease by the toxins of erysipelas and bacillus prodigiosus, R. M. Stone⁴² presents the history of a case in which, after amputation of the cervix and curettement of the uterus, both broad ligaments were found infiltrated and five almost fatal hemorrhages occurred. The injection of toxins was then carried on for several months, an overdose on one occasion nearly causing death. A year from the time of operation the patient is in apparently perfect health, the uterus much atrophied, and no discernible infiltration of the broad ligament exists. Gowans⁶ reports a recovery after hysterectomy by the combined route for carcinoma of the cervix.

Cancer of the Breast.—Recovery after amputation of the breast for recurrent carcinoma is reported by D. C. Black.⁶ J. B. Shober³³ relates the history of a case of carcinoma of the breast in a woman 24 years of age. There has been no recurrence in ten months since its amputation. The patient's mother died of carcinoma of the uterus, two maternal aunts of carcinoma of the breast, and her father had his thumb amputated for a growth said to be epithelioma.

Heidenhain and Stiles have shown that the recurrence of carcinoma mammae is due to the early invasion by cancer cells

of the perimammary and retromammary lymphatics. Jaeiss⁷⁴³ investigations attempted to prove or disprove the presence or absence of cancer metastasis in the axillary fat. The result was negative in eight cases, while in one case cancer cells were found in a solitary lymphatic nodule. This experimental investigation coincides with the known clinical results, which show that a recurrence from the axilla is rare. Since the extensive removal of the surrounding skin and the underlying pectoral muscles the prognosis has markedly improved. The author claims that local recurrences have decreased 26.2 per cent, while the permanent cures have increased over 15 per cent.

Cancer of the Thoracic Duct (Unger⁷⁴⁴) was found as metastasis in a case of cancer of the uterus in a woman 29 years old. Chylothorax duplex was also present.

The Origin of Cancer.—Leopold⁸¹ reports further results of his investigations, which are a continuation of the experiments made in conjunction with Dr. Rosenthal and which some time ago were reported in the *Archiv für Gynäkologie* and THE AMERICAN JOURNAL OF OBSTETRICS. One can take different roads to trace the origin of cancer: 1. The statistic investigation as to frequency, distribution in different countries, cities, and families, also as to age, sex, and occupation. 2. Clinical observations, mainly concerning recurrence, transmission, or transplantation. 3. Animal experiments, which have given valuable information. 4. Microscopical investigation with hardened specimens or living, perfectly fresh tissues. Leopold has devoted himself to investigations of perfectly fresh tissues, and he found the carcinoma ovarii and corporis uteri most suitable. The extirpated organ is wrapped immediately in sterile gauze, placed in a sterilized vessel, and dissected with sterilized knives. The furthest outposts of the disease are found, and a drop of sterilized bouillon or serum, together with a particle of cancerous tissue, is placed upon a sterilized cover glass, which latter is laid upon a hollowed object glass. After this the edges are closed with vaseline. The object is examined in a heated microscope. The construction of the microscope must be so perfect that the object can be observed for weeks in a uniform temperature of 99° to 100° F. Leopold has an instrument, made by Senner, of Dresden, which has kept the specimen in a temperature of 100° F. for sixty days.

Salpingitis.—In an article upon the symptoms and diagnosis of salpingitis L. G. Baldwin⁷⁴⁵ says that he does not believe that a pyosalpinx ever discharged through the uterine end of the tube into the uterus either spontaneously or as a result of dilating and curetting the uterus. His reasons are that the normal size of the lumen of the tube at the isthmus, with the large amount of muscular tissue it contains at that point, renders narrowing, if not complete occlusion, almost certain as a result of the preceding inflammatory process, and that in examining forty-one specimens none were found through whose uterine end pus could be squeezed without the use of considerable force.

As aids in the differential diagnosis of acute appendicitis and acute catarrhal salpingitis of the right side, H. N. Vineberg⁴² offers the following points: In appendicitis the pain is frequently more severe than in salpingitis, more likely to be limited to the abdomen, and does not radiate to such an extent. When the ovary is involved with the tube the pain usually descends the corresponding thigh. In appendicitis the alarming symptoms may continue or grow more severe after three or four days, while in salpingitis they generally subside somewhat within that time. If the symptoms are not very urgent a delay of this length is proper, but, if severe, examination should be made under an anesthetic. The treatment of acute catarrhal salpingitis should be absolute rest in bed, opium per rectum for the pain and peritonitis, daily enemata, the avoidance of sexual excitement, light nutritious diet, and ice applications to the abdomen, or a Priessnitz compress if the ice is not well borne. Recurrent attacks after proper treatment demand surgical interference, and the sooner the diseased tube is removed the better the prognosis.

Bacteriology of the Diseased Adnexa.—Kiefer,⁴⁵ To settle the following three questions a large series of cases were subjected to a careful examination.

1. Which method of examination is of the greatest practical value—microscopy or cultivation of bacteria?
2. What is the proportion of the different species of bacteria?
3. What is the average virulence of the pyogenic bacteria?

The examination material consisted of 40 cases of pyosalpinx and ovarian abscesses; in all of these cases pus had soiled the peritoneum. The results were:

MICROSCOPICAL.	CULTURE METHOD.
52½ per cent contained germs.	40 per cent contained germs.
Of these,	Of these,
32½ per cent were gonococci.	22½ per cent were gonococci.
22½ " " bacteria coli.	10 " " bacteria coli.
7½ " " streptococci.	2½ " " streptococci.
5 " " staphylococci.	5 " " staphylococci.

This shows that practically the culture method is superior to microscopy. Although the microscope shows the presence of bacteria, it does not give information about their vitality or degree of virulence. The gonococci are largely in the majority; next in number are the bacteria coli, the latter mainly found in ovarian abscesses. None of these forty cases perished from purulent infection of peritoneum, which again proves the fact that bacteria confined and encapsulated in closed cavities soon lose their virulence; they die from the presence of their own products, the toxins. The average time determined from the formation to the sterility of the pus is about nine months.

Ovary.—In marked contrast to the usual slow growth of cystic tumors of the ovary and broad ligament are several cases described by M. Handfield-Jones.⁴⁶ The most remarkable of these

was that of a woman who had had occasional attacks of pain in the right iliac region about three months before labor, but in whose abdomen nothing unusual was detected during the expulsion of the placenta. On the next day she complained of decided distension of the abdomen. Percussion showed dulness from the symphysis half-way up to the umbilicus. Three days later this had reached the xiphoid cartilage, and a multilocular cyst of the right ovary was removed by laparotomy. Rapid increase in size of a cyst may be caused by torsion of the pedicle or by refilling of a ruptured parovarian cyst. In rapidly growing pelvic cystoma pain is usually a prominent symptom, but not in those of slow growth. In the former it may be so acute as to suggest peritonitis, but the extreme rigidity of the abdominal muscles present in peritonitis is not found. Ovarian cysts of rapid growth contain blood or blood-stained serum; the cyst walls are extremely injected and the tissue soft and friable; ascitic fluid is often found in the peritoneal cavity; the patient feels seriously ill and the loss of flesh and strength is rapid. H. Leaman¹⁰ describes a case of hysteria under observation for thirteen years. Oöphorectomy failed to relieve the hysterical symptoms. At the autopsy the vermiform appendix was found adherent to the pedicle of the right ovary. Two cases of ovarian cyst with torsion of the pedicle are reported as having recovered after ovariectomy by M. Bilhaut.⁴⁷ The successful removal of a dermoid cyst containing hair, bones, and teeth is reported by A. V. L. Brokaw.⁶ A successful double ovariectomy is recorded by J. H. Hodges.⁴¹ F. S. Gramshaw⁴⁸ reports success in three ovariectomies for multilocular, unilocular, and dermoid cysts, and L. Frank³⁴ met with favorable results from removal of both appendages for ovarian cyst and pyosalpinx.

The Location and Ligaments of the Ovary.—A. Martin.⁷ A large number of specimens from women, children, and embryos were used for the author's careful investigations, which are excellently illustrated. Martin states that the ovary is not in part enclosed by the broad ligament, but is attached to it by a more or less projecting fold. With the woman upright the long diameter of the ovary stands nearly vertical to the lateral and posterior wall of the pelvis, and the major portion of the organ is in intimate contact with the wing of the sacrum.

Endothelial Ovarian Tumors.—Rosinsky.³ This paper is based upon a careful histological investigation of three cases of ovarian tumors obtained through operations. In the first case, which was a woman 41 years old, multiple endotheliomata of both ovaries and the stomach were found, with metastases in various parts of the body. The examination of the main tumors of the ovaries and stomach led Rosinsky to the conclusion that these were the primary tumors. In the ovarian tumor the new growth originated mainly from the flat endothelial cells of the lymphatics; it resembled the intrafascicular endothelioma of Ackermann. It, however, was not a true endothelioma, but a mixed tumor with a tendency to sarcomatous degeneration. The second tumor came from the right

ovary of a woman 55 years old; it had the histological appearance of an endothelioma probably originating from the lymphatics. Endotheliomata of both ovaries were found in the third case. Myxomatous degeneration of the connective tissue formed the basis of these growths, which, according to Volkmann, is frequently observed. Such tumors must not be classed as sarcomata or myxomata, but should be considered as real endotheliomata. Rosinsky's paper is full of interesting histological details, which, however, cannot be brought into the narrow space of an abstract.

Tuberculosis of the Ovaries.—Wolff²³ shows that tuberculosis of the ovaries is not so rarely met with as commonly supposed. He investigated seventeen cases of women who perished from tuberculosis, and in five of these he found tuberculous affection of the genitals: in three cases tuberculous disease of the ovaries on both sides could be demonstrated.

Cicatricial Atresia of the Vulva.—The patient became pregnant shortly after marriage. Labor being protracted somewhat, the midwife became impatient and "opened the passages" with a knife. Menstruation was absent throughout the following seven years. Upon examination by H. Bousquet⁴ the vulvar orifice was seen to be completely obliterated and replaced by a line of scar tissue. Withdrawal of the retained menstrual fluid and a plastic operation for the restoration of the vulva were followed by recovery.

Congenital Deformities of the Uterus and Vagina.—Twelve cases of congenital deformity of the female genitals, which presented themselves at the Helsingfors gynecological clinic, are described by C. A. C. Tennberg.⁴⁹

Congenital Absence of the Vagina.—M. Dumitrescu⁵⁰ describes the autoplasic and heteroplasic operations employed by several surgeons in the formation of a vagina in cases of congenital absence of this organ. He also describes Suéguireff's method of forming a vagina at the expense of the anus and rectum, and strongly condemns it.

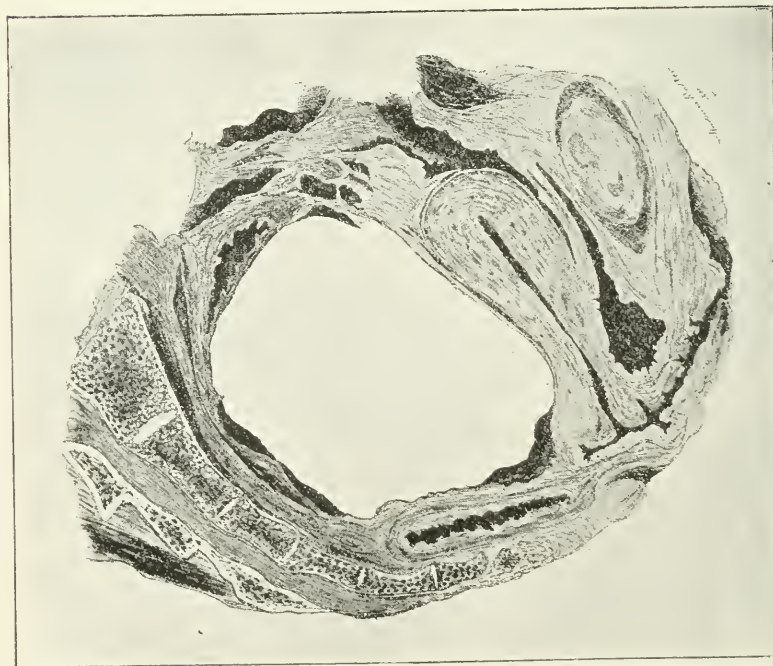
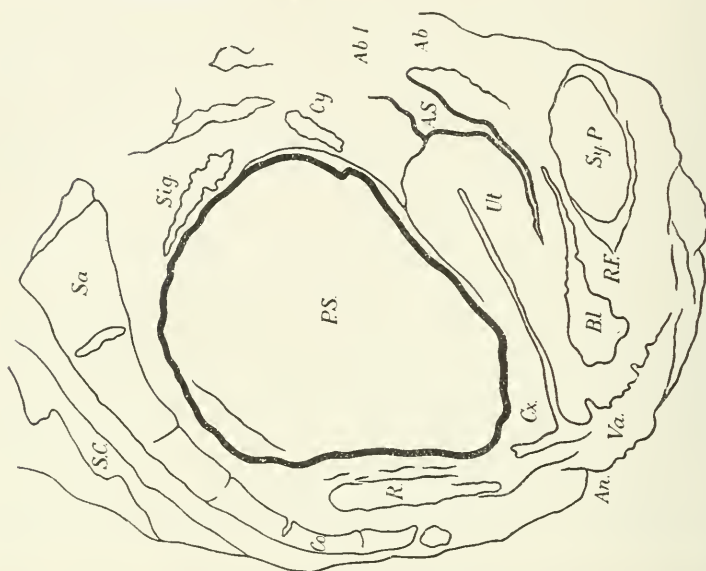
Masturbation.—A case of excessive masturbation in a girl 7 years old is recorded by E. Lanphear.⁵¹ It was successfully treated by out-of-door exercise, good food, sedatives, and iron.

Viburnum Prunifolium.—An experimental study of the action of viburnum prunifolium has been carried out by T. Shennan.⁵² He considers it of value in habitual abortion (unless caused by syphilis or fatty placenta), threatened abortion, certain varieties of dysmenorrhea, some of the disorders of the menopause, and other conditions.

Use of Senecio in Menstrual Disorders.—W. E. Fothergill⁵³ summarizes the work recently done by several investigators, confirming the emmenagogue effects of senecio, and describes its chemical principles and physiological action.

Parovarian Cyst.—Wins¹³ reports a case of hyaline parovarian cyst which had existed about twenty-five years. Being ruptured by a fall on the abdomen, the contents were rapidly absorbed by the peritoneum and eliminated by the urine.

Pelvic Hematocele.—Mrs. A., age 23, had pain in the left



Pelvic Hematocele - vertical mesial section. P.S., Posterior blood sac; A.S., anterior blood sac; Ut., uterus; Cx., cervix; Bl., bladder; Va., vagina; Sig., sigmoid flexure of colon; R., rectum; An., anus; Sa., sacrum; Co., coccyx; Cy., small cyst; Ab., abdominal wall; Sy.P., symphysis

side and bleeding from the vagina for eight weeks continuously.

Eighteen months before she had given birth to a seven months' fetus; no other miscarriages. Menstruation regular. Severe leucorrhea and increased hemorrhage after exertion. Vaginal examination showed a large, rounded, fairly firm mass in the left lateral and posterior fornices, this examination causing pain, as did pressure upon the abdominal wall. Abdominal section revealed a blood sac extending to within two inches of the umbilicus. It was emptied and packed with iodoform gauze, no trace of fetus and placenta being found. Death from collapse occurred on the sixth day. Subsequent microscopic examination showed no indications of extrauterine gestation, recent or remote. The mesial sagittal frozen section made by Andrew Walker,¹⁴ and shown in the accompanying cut, illustrates the displacement of the pelvic viscera produced by a blood effusion, and furnishes an explanation of the functional disturbances following recovery from a large hematocoele.

Hydronephrosis caused by the Oblique Entrance of the Ureter.—Tóth.² A multipara æt. 39 observed as long as thirteen years ago a temporary tumor of the right side. The tumor reappeared four months ago. It was found to be an elastic swelling the size of a man's head, and apparently of renal origin, although the urine was perfectly normal. At a subsequent laparotomy the tumor, which proved to be a hydronephrotic kidney, was easily removed. It was found that the ureter made its exit at an oblique angle. This was believed to be the cause of the hydronephrosis, although it is possible that the displacement of the ureter was a sequel and not the cause of the hydronephrosis.

Gonorrheal Cystitis.—A. Lindholm⁴⁹ gives an account of a case of gonorrheal cystitis, observed at the Helsingfors clinic, which was cured by local treatment with solutions of boric acid and silver nitrate.

Gonorrhea.—In view of the prevailing tendency to treat of the subject of gonorrhea in women as a disease of individual organs—vaginitis, endometritis, or salpingitis—or under such headings as sterility, dysmenorrhea, or other symptoms, rather than as a single disease varying only in extent, B. Gordon⁴² presents a paper upon gonorrhea, discussing the various lesions which the gonococcus may produce. Under the heading of prophylaxis he advises early marriage, isolation, warnings against intercourse or marriage while the disease lasts, thorough treatment of men on account of the obstinacy of the disease, and asepsis and antisepsis of instruments employed. He believes that early marriage would strike the severest blow against prostitution and thus lessen gonorrhea. By this, however, is meant marriage, not as soon as menstruation is established, but when the sexual organs are completely developed. Gordon advocates the attainment of isolation by the registration and examination of prostitutes by health inspectors, with compulsory detention under hospital treatment until the disease

is positively cured. H. S. Lott¹⁵ condemns the use of vaginal injections in gonorrhea, as mechanically aiding the spread of the gonococci. He advises a hip bath for twenty minutes night and morning at as high a temperature as can be borne. After each the vagina should be swabbed thoroughly with absorbent cotton, the labia bathed, and a cone-shaped tampon introduced with its base toward the uterine os. The tampon is made of cotton saturated with boroglyceride or tanno-glycerin.

REFERENCES.

- ¹ British Gyn. Jour., Nov. ² Cent. f. Gyn., No. 43. ³ Zeitschr. f. Geb. u. Gyn., Bd. xxxv., H. 2. ⁴ L'Obst., Nov. ⁵ Lancet, Nov. 28th. ⁶ Med. Rev., Nov. 21st. ⁷ Arbeit. aus dem Gebiet der Geburtshilfe u. Gyn. ⁸ Jour de Méd. de Paris, Nov. 29th. ⁹ Johns Hopkins Bull., vol. vi. ¹⁰ Am. Gyn. and Obst. Journal, Nov. ¹¹ Bull. de la Soc. Belge de Gyn. et d'Obst., No. 9, 1896. ¹² Jour. des Sci. méd. de Lille, Nov. 28th. ¹³ Le Nord Méd., Dec. 1st. ¹⁴ Quart. Med. Jour., Oct. ¹⁵ N. C. Med. Jour., Dec. 5th. ¹⁶ Zieg. Beitr. z. path. Anat. u. allg. Path., Bd. xix., H. 3. ¹⁷ Maryl. Med. Jour., Dec. 5th. ¹⁸ Cent. f. Gyn., No. 44. ¹⁹ Jour. des Sag.-Fem., Nov. 16th. ²⁰ Phil. Poly., Nov. 21st. ²¹ Gail. Med. Jour., Dec. ²² Cent. f. Gyn., No. 46. ²³ Arch. f. Gyn., Bd. lii., H. 2. ²⁴ Le Prog. Méd. Nov. 14th. ²⁵ Ed. Med. Jour., Dec. ²⁶ Chic. Med. Rec., Nov. ²⁷ N. Y. Med. Jour., Nov. 14th. ²⁸ Cinc. Lanc. Clin., Dec. 12th. ²⁹ Int. Gyn. Cong. in Geneva. ³⁰ Maryl. Med. Jour., Nov. 14th. ³¹ Monatschr. f. Geb. u. Gyn., Bd. iv., H. 3. ³² Chic. Clin. Rev., Dec. ³³ Bost. Med. and Surg. Jour., Dec. 10th. ³⁴ N. Y. Med. Times, Dec. ³⁵ Univ. Med. Mag., Dec. ³⁶ Jour. des Sci. méd. de Lille, Nov. 21st. ³⁷ Arch. f. Klin. Chir., Bd. liii., H. 3. ³⁸ Monatschr. f. Geb. u. Gyn., Bd. iv., H. 4. ³⁹ Bost. Med. and Surg. Jour., Dec. 3d. ⁴⁰ Bull. Alumni Assoc. Med. Dep. Univ. Nashv., Nov. ⁴¹ New Orl. Med. and Surg. Jour., Dec. ⁴² Med. Rec., Nov. 21st. ⁴³ Deutsch. Zeit. f. Chir., Bd. xlv., H. 1 and 2. ⁴⁴ Virch. Arch., Bd. cxlv., H. 2 and 3. ⁴⁵ Cent. f. Gyn., No. 42. ⁴⁶ Pract., Dec. ⁴⁷ Jour. de Méd. de Paris, Nov. 22d. ⁴⁸ Lancet, Nov. 21st. ⁴⁹ Finska Läkarsälls Hand., Oct. ⁵⁰ Ann. de Gyn. et d'Obst., Oct. ⁵¹ Am. Jour. of Surg. and Gyn., Oct. ⁵² Ed. Med. Jour., Nov. ⁵³ Med. Chron., Nov.

DISEASES OF CHILDREN.

Analgen in the Treatment of Sydenham's Chorea.—Moncorvo¹ has administered this drug, otherwise known as quinalgen or ortho-ethoxyl-anamonobenzoylamido-quinoline, to fifty-nine children from 20 days to 13 years old, thirty-three of whom were suffering from malaria and the remainder from various other affections. It was given to the latter as an analgesic and a nervine. In a little patient affected with chorea, with a family history of syphilis, alcoholism, and hysteria, its administration was followed by the best results. Four ounces of analgen were given in the course of fifty days; the medicine was perfectly tolerated from the beginning, the chorea disappeared completely and in five months has not shown the slightest tendency to reappear.

Continued Hyperpyrexia in Children, a Peculiar Form of, Epidemic in Nature.—Herman B. Sheffield² reports some observations made in a series of cases occurring in an institution within four or five days of each other, in which there was a peculiar continued hyperpyrexia. There were mild prodrom-

mic symptoms for one or two days, consisting of moderate lassitude and anorexia, with slight headache; occasionally there was a mild sore throat or stiffness of the neck. On the subsidence of these symptoms the temperature rose quickly from 104° to 106° and continued almost uninterruptedly for two to three and a half weeks, ending finally by lysis or crisis, dropping two or three degrees below normal. No morning remissions or evening exacerbations were discernible. The morning temperature often exceeded that of the evening. All other symptoms were either absent or very mild. There was mental dulness, but the children felt well and resented their confinement. There was also more or less marked deafness, not attributable to quinine. The articulation was greatly disturbed, either slow and dragging, or in others the speech simulated the "alalia" of progressive bulbar paralysis. Three children pronounced their words in a different way. The stools, one or two a day, were yellowish, loose, and only slightly affected by calomel. Between the sixth and eighth days all the children passed two or three stools, grainy like canary seed and grass-green in color, floating in a yellow liquid. Among other organisms found in the ejecta was one which, though appearing a trifle thinner than the coli communis, corresponded with it in all other particulars. A post-mortem examination of one patient, who died on the seventeenth day of the disease, revealed no lesion indicative of intestinal disease and no enlargement of the spleen. Epistaxis was an important symptom in three-fourths of the cases. Cutaneous ecchymoses were noticed in six children. Ehrlich's diazo-reaction was absent. The only death was undoubtedly due to tubercular disease. The treatment was symptomatic.

Coryza in Young Children in relation to Nocturnal Spasmodic Cough accompanied by Vomiting.—Paul Gaston³ considers that coryza in young children is too much neglected, and that it is often responsible for the severe nocturnal attacks of coughing whose etiology is frequently so obscure. Young children being unable to expel the mucus, it falls into the throat; by its tickling of the pharyngo-laryngeal region it causes reflex efforts of expulsion; by falling upon the arytenoids and the vocal cords it provokes glottic spasm and suffocation. The cough is nocturnal because the mucus falls more readily into the throat when the head is thrown back. Posterior coryza also causes cerebral affections, even to meningitis, especially when the coryza is of syphilitic origin accompanied by pus formation. Purulent otitis, catarrh of the Eustachian tube and deafness, spasmodic laryngitis, false croup, laryngismus stridulus, spasm or even edema of the glottis, chronic laryngitis with hoarseness and dyspnea, catarrhal bronchitis, bronchopneumonia, digestive troubles from swallowing the expectorations, may all result from coryza. Treatment consists in morning and evening washing out of the nose with Weber's siphon. Young and intractable children will not submit to this

procedure, in which case one may several times daily insert pointed tampons of absorbent cotton soaked in boracic acid and vaseline. The child sneezes at first, but soon tolerates the wad, and the vaseline penetrates the nasal fossæ and reaches the pharynx. Tannin, alum, and antipyrin may be added to the vaseline. The following is very efficacious: Vaseline, five drachms; boracic acid, fifteen grains; antipyrin, eight to fifteen grains, according to the child's age.

Croup.—A. Monae⁴ reports a case of croup complicated with pneumonia, intubated and treated without food, antipyretics, or alcohol, with recovery.

Diphtheria.—In order to ascertain the quality of the antitoxin used in America, A. C. Abbott⁵ has undertaken, at the request of the *Medical News*, the testing of samples of serums from the different makers, obtained in the open market. Nineteen specimens were obtained, of which six were the output of the laboratories of the health departments of New York and Philadelphia. Thirteen came from private manufacturers in this country and abroad, representing the following firms: Institut Pasteur de Lille; Schering; Parke, Davis & Co.; Institut Pasteur of Paris; H. K. Mulford Co.; Buffalo Antitoxic Co.; Roux Institut Pasteur de Paris; Behring; and the New York Pasteur Institute (Gibier). These were procured in different cities. The method employed in determining the antitoxic values of the several samples is that of Ehrlich, Kossel, and Wassermann, and the protective values of the serums are expressed in terms corresponding to their standard—viz., a serum of such strength that one-tenth cubic centimetre fully protects a guinea-pig against ten times the minimum fatal dose of diphtheria toxin is a "normal serum," and one cubic centimetre of such a serum contains an "immunizing unit." Serums of such strength, therefore, that 0.01 and 0.001 cubic centimetre have the same effect as 0.1 cubic centimetre of a normal serum are ten and one hundred times as strong as a normal serum—i.e., contain ten and one hundred immunizing units respectively per cubic centimetre. On this basis the different samples have been tested, with the results given in the table. It will be seen that the majority of the samples exhibit the average required strength; that Nos. 1, 2, 7, and 14 were unusually rich in protective substances, while in only a few samples (Nos. 9, 11, and 15) was there a relative deficiency of antitoxic properties.⁴ The table shows a great discrepancy in some instances in the actual strength of the sample and its advertised strength. Not only that, but samples from the same manufacturer purchased in different markets at the same and different dates show a wide variation. For instance, Nos. 1 and 4 both came from the same laboratory and were procured at the same time; Nos. 5 and 6 came from one laboratory at one time and bore the same date; Nos. 9, 11, and 14 came from one laboratory, but were purchased in different cities. Nos. 13 and 19 came from one laboratory also. Practically it may be said that some samples of serum are found to

Serum number.	Times tested.	Immunizing units per cubic centimetre.	Number of cubic centimetres of serum in original flask.	Total number of immunizing units, each flask.	Immunizing units per cubic centimetre claimed.	Number of cubic centimetres of serum in original flask claimed.	Total number of immunizing units in each flask claimed.
1	12	350	10.	3,500.	50	Not stated.	Not stated.
2	14	350	9.9	3,465.	150	10	1,500
3	6	150	11.2	1,680.	Not stated.	Not stated.	1,500
4	10	250*	2.8	700. ¹	Not stated.	Not stated.	2,500
5	6	70	9.25	647.5	100	10	1,000
6	6	150	9.2	1,380.	100	10	1,000
7	14	350	18.4	6,440.	"Dose 5 to 30 cubic centimetres."	20	Not stated.
8	6	150	4.2	630.	"Dose 5 to 20 cubic centimetres."	5	Not stated.
9	7	50	3.55	177.5	Not stated.	Not stated.	1,000
10	5	100	9.7	970.	Not stated.	10	Not stated.
11	7	Less than 20	3.6	Less than 72	Not stated.	Not stated.	1,000
12	4	100	9.7	970.	Not stated.	10	Not stated.
13	7	100	3.45	315.	100	5	500
14	13	250	9.1	3,185.	Not stated.	Not stated.	600
15	8	Less than 50	8.2	Less than 410	Not stated.	Not stated.	1,500
16	8	70	9.	630.	20 "estimated."	10	200
17	4	100	9.7	970.	100	10	1,000
18	4	100	9.1	910.	100+	10	1,000+
19	10	200	9.3	1,860.	100	10	1,000

retain their strength absolutely for periods of from three to twelve months. Other samples are found to gradually lose their strength, so that at the end of three or six months they may contain but about two-thirds of their original strength. In some cases this does not seem to depend entirely upon the preservative used: in others it does. Different manufacturers vary in their ideas of the proper number of units to place in the different grades. Recognizing the fact that serums may gradually lose in strength under various conditions, and believing that a larger number of antitoxin units is absolutely harmless, some manufacturers insert even twice the number of antitoxin units which they represent to be present upon their labels. Others believe it more accurate to put in only about as many more units as they expect the serum to deteriorate within the time during which they expect it to be used. The use of antitoxic serum in the treatment of diphtheria under the supervision of the New York City Health Department, with a résumé of the published reports on this subject, is presented by Hermann M. Biggs⁶ and Arthur R. Guerard.⁶ The article is so voluminous and contains so many charts and tables that it is impossible to do it justice in an abstract. There were treated by the Health Department up to October 1st, 1896, 1,252 cases of true diphtheria, of which 1,054 recovered, the mortality being 15.8 per cent. Excluding 80 moribund cases the mortality would be reduced to 10 per cent. Of the whole number,

* The serum in flask No. 4 was exhausted before this test could be carried higher.

574 were reported by the inspectors to be suffering with a severe form of the disease. In 355 the larynx, with or without the pharynx, tonsils, and nares, was involved. In 242 cases, in addition to the pharynx and tonsil, the nares was involved. One hundred and eight deaths occurred among the 355 laryngeal cases, giving a mortality of 30.4 per cent. Of the laryngeal cases 72 were intubated; of these 29 died, or 40.2 per cent. In 283 laryngeal cases there was no operative interference, and in these the mortality was 27.9 per cent. In 793 of the cases only one injection was administered; in 352 two injections were made; and in 108 three or more. In all severe cases the initial dose was large, varying from 1,500 to 3,500 units, experience showing that the best results were obtained from the large initial doses, and the tendency has been to constantly increase the size of the dose. There has been a diminution in the frequency with which rashes have occurred, and in the severity of these, since the use of the higher grades of antitoxin, in which smaller doses of the serum are employed. Joint symptoms, pyrexia, and albuminuria have occurred, but in no case could death be ascribed to the administration of the serum. Immunizing injections varying from 50 to 500 units were administered to 1,207 persons. In 5 of these laryngeal diphtheria developed within twenty-four hours, and in 7 others pharyngeal diphtheria appeared. In 9 cases diphtheria developed within thirty days of the injection. All of these cases were mild except 2, 1 of which died on the second day with diphtheria complicated with scarlet fever. The article then goes on to discuss an extended series of reports concerning the mortality in diphtheria in New York, Paris, and Berlin since 1880. A few of the summaries of these reports are as follows: In 108 reports from hospitals there were 15,560 cases with 3,009 deaths, or a mortality of 19 per cent with the antitoxin treatment. In 49 reports from private practice there were 9,208 cases with 995 deaths, or a mortality of 10.1 per cent. Or, in a total of 24,768 cases, there were 4,004 deaths (a mortality of 16 per cent), as against a previous or simultaneous fatality of 30 to 40 per cent without antitoxin treatment. The following is a review of cases treated simultaneously or practically so: 11,147 cases were treated with antitoxin, with 2,169 deaths, or a mortality of 19.1 per cent, while at the same time or immediately after or before the antitoxin treatment there were 13,294 cases treated without antitoxin, with 5,026 deaths, or a mortality of 37.8 per cent. Separating the hospital and private patients, there were treated in hospital 7,986 cases with antitoxin with a mortality of 21 per cent, as against 9,039 cases treated without antitoxin with a mortality of 36.4 per cent. In private practice there were 3,161 cases treated with antitoxin with a mortality of 13 per cent, as against 4,255 cases treated without antitoxin with a mortality of 40 per cent. From the statistics of the Berlin hospitals it would appear that the deaths have been reduced one-half since the introduction of antitoxin, though the number of cases reported has steadily increased.

In a total of 15,148 cases of laryngeal diphtheria treated with antitoxin, taken from 72 reports, there were 2,626 deaths, or a mortality of 16.6 per cent. Of these 12,066 cases were not operated upon, of which 1,491 died, giving a mortality of 13.5 per cent; 3,082 were operated upon, of which 1,135 died, or 36.7 per cent. Before the antitoxin treatment 40 per cent of all cases were reported as having required operative treatment, and the previous mortality was 70 per cent for all operated cases, according to the average figures recorded in these reports. Raoul Bayeux⁷ and Pierre Audin⁷ report a case of laryngo-tracheo-bronchial diphtheria without "tirage," in which death was apparently due to intoxication. The authors believe that the case was seen too late for the antitoxin to produce any beneficial effect. G. Variot,⁸ from careful observation of benign diphtheria in himself, the result of a culture of the exudate in serum demonstrating the presence of streptococcus and the short and medium Löffler bacilli, and from comparison of his case with many observed in children, concludes: 1. That the demonstration of associated bacilli in serum cultures has no clinical significance. 2. That until we shall have found some rapid and accurate method of establishing the virulence of strepto- and staphylococci, which are the common microbes of the mouth, it is premature to affirm from the examination of serum cultures that there is an association of microbes. 3. The diagnosis of diphtheritic angina with associated bacilli should not be made until after the virulence of the staphylo- and streptococci has been demonstrated by the isolation of colonies grown on serum, and their culture in special media which allow of experimentation with them upon animals. 4. In his extensive experience he has never seen any marked and distinct clinical characteristics corresponding to the association of microbes as seen in their serum culture. G. Variot⁹ reports and describes a number of cases of grave false croup and bacteriological diphtheria of the pharynx.

Examining Sick Children, Best Methods of, with a Consideration of some Obscure or Rare Maladies.—Many of the ailments of young children, writes J. Lewis Smith,⁵ are peculiar, more concealed, and require more time for investigation and exact diagnosis than the maladies of later life. Upon visiting a sick child the physician should enter the nursery quietly, and, taking a seat at a distance and without appearing to notice it, should learn its history and the particulars of its sickness. In this way the experienced physician can often make a diagnosis which a closer examination shows to be correct. In some instances this distant examination gives a more accurate idea of the nature of the malady than is to be obtained by a closer inspection. The pain of an otitis media is indicated by the infant carrying its finger to its ear, but it does not do this if frightened by the near approach of a stranger. Attempts to amuse the child are always proper, and the physician should endeavor to make it feel that it will find in him a friend and a playmate.

and it will then act in a more natural manner. Force used to overcome the dread and the resistance of a sick child will never be successful, except in case of the restraint necessary for the inspection of the fauces. It need not be said how important it is to ascertain the temperature, but in an emotional child excitement or fright may cause such sudden elevation as may prove misleading. In such cases it is better that the temperature be taken by the mother or nurse before the approach of the physician. In weak and wasted infants suffering from malnutrition a persistent subnormal temperature must be regarded as a very unfavorable prognostic sign. Dilatation, inequalities, and sluggish movements of the pupils, oscillation and strabismus, occurring during the course of an illness, are unfavorable signs and indicate cerebral disease. Rachitis in its worst form is common among Italian immigrants and American negroes, probably because of the poor diet and the unsanitary condition in which they live. The increasing frequency of rachitis in America is also due, without doubt, to the extensive use of proprietary foods, the majority of which contain less than one per cent of cream. In infants who are much emaciated through previous ill health the brain participates in the general waste, and if tubercular meningitis occur, with considerable increase of the cerebro-spinal fluid, which is not uncommon, this increase does not equal the waste and the fontanelle remains depressed—a fact which should be borne in mind to prevent error in diagnosis. A nasal discharge (though slight), huskiness or other change in the voice from the normal, or an occasional cough should direct attention to the fauces and lead to their examination. Infantile bronchitis in its commencement, though confined to the larger tubes, should not be made light of if attended by restlessness and fever; the inflammation is probably pursuing a downward course. In broncho-pneumonia cough is a prominent symptom from beginning to end, the reverse being true in pleurisy, in which, even in the purulent form, cough sometimes never occurs during the entire course of the disease. In the disease variously designated as spinal affection, spinal irritation, hyperesthesia, etc., observed in ill-fed and anemic children as well as adults, there is tenderness and dull pain, increased by pressure, over a certain area, whether upon the head, face, chest, abdomen, or elsewhere. This malady is often mistaken for gastro-intestinal complaints or subacute pleurisy. Pressure along the spine and over the rootlets of the nerves supplying the affected parts is not only painful at the point of pressure, but it intensifies the habitual pain from which the patient suffers. The diagnosis of intussusception is not difficult, for the occlusion is usually so complete that, after the rectum is once washed out, only blood, or blood with mucus, escapes from the invaginated intestine. The character of the discharge differentiates the condition from appendicitis, as the latter is not attended by bloody evacuations. A fever which has been erroneously assumed by many to be due to malaria has occurred among children in New York year after year. It

is met with at any season, but especially during the autumn. Ordinarily it comes on gradually with malaise, headache, moderate thirst, weakness, and a dull expression of the face. The fever is constant, varying in degree at different times, being usually highest in the evening and at night. Examination fails to reveal any adequate local cause. There is commonly no marked abdominal tenderness, or tenderness and enlargement of the liver and spleen, and in most cases no rose-colored eruption. The duration of the malady varies from nine days to several weeks. Quinine has little or no appreciable effect. Of late, however, clinical observations and autopsies tend to prove that the fever is a mild form of typhoid. M. Marfan⁸ gives directions for the best method of questioning parents in regard to the family and personal history of the child and to the physical examination.

Gland Fever.—Under this name a condition was first described by Pfeiffer in 1889 which seems, clinically at least, to represent a new pathological entity. Herbert B. Whitney,¹⁰ who presents an article on this subject and reports some cases, states that the etiology is a study for the future. Undoubtedly the disease is infectious and is likely to affect several members of the same family. The only constant and characteristic symptoms of this affection are an acute and usually painful swelling of the cervical glands, together with considerable fever of from eight to fourteen days' duration. Anorexia and marked constitutional depression, with slow convalescence, are the rule. As frequent concomitants are to be mentioned initial vomiting, a moderate congestion of the fauces, and obstinate constipation. The glandular swelling is usually bilateral, although there is frequently a marked predominance on one side. The glands involved are chiefly those along the posterior border of the sterno-mastoid muscle. The swellings show no tendency to confluence, and there is no disposition to phlegmon or supuration. The swelling is unlike that of diphtheria; it is most prominent high up near the auricle instead of at the angle of the jaw. Digital examination will readily exclude the possibility of retropharyngeal abscess. All cases have hitherto invariably recovered. No treatment other than purely symptomatic has as yet been suggested.

Intubation Tube and its Modifications.—In a letter J. O'Dwyer¹¹ criticises the use of intubation tubes with appliances designed to facilitate extraction to the exclusion of all other considerations. Every one of the numerous modifications that have from time to time appeared has been simply a greater or less degree of mutilation of the perfect instrument. When a tube is placed in the larynx the constrictor muscles are no longer able to prevent the entrance of foreign substances into that passage, and the whole duty of protecting the larynx then devolves upon the epiglottis. In the modified instruments this function of the epiglottis is interfered with. Until some form of tube is devised which will enable the inexperienced to operate without bungling, it is better to rely, in the few instances

where intubation is necessary, on the numerous skilful intubationists already in the field.

Intussusception.—Report of a case in a child 7 months old by W. P. Northrup¹⁰: high injection followed by recovery.

Meningitis with Pneumococci following Panophthalmia.—E. Ausset⁹ reports a case which occurred after the enucleation of the eyeball, but in which he believes the disease not to be traceable to the operation, which was performed under strictly aseptic conditions. He thinks it extremely probable that the infective process had already begun before the operation, and emphasizes the fact that before proceeding to remove the eye in cases of panophthalmia the physician should always ascertain whether the meninges have been involved in the infective process.

Parenchymatous Myocarditis in the Child.—Weill¹² describes several cases and draws the following conclusions: (1) There exists in children an acute parenchymatous myocarditis which occurs especially during the course of chronic endocarditis; (2) this myocarditis seems to be caused by infection due to rheumatism, and perhaps to the other general diseases, especially erysipelas; (3) it is clinically made manifest by an asystole lasting from several hours to several months. Its characteristic symptom is the absence of all modification of the cardiac rhythm. Anatomically it consists of a parenchymatous myositis, therefore a development of the protoplasm at the expense of the contractile substance, dissociation and rarefaction of the elementary fibrils, proliferation and hypertrophy of the nuclei, diminution of the muscular striation, and absence of interstitial or vascular lesions.

Petit Mal in Children.—In an article on this subject Louis Fougères Bishop¹³ says that up to about 3 years of age it is difficult to make a diagnosis, because the physiologic irritability of the nervous system is so great that we cannot exclude a sufficient cause of irritability. After the age of 3 years the nervous system has obtained a degree of stability that makes the frequent occurrence of convulsive seizures an indication of epilepsy. An attack of petit mal may assume a great variety of forms: it may consist of a mere momentary blurring or loss of consciousness at frequent but irregular intervals, or a sudden sensation of fright without apparent cause, or a feeling of something in the epigastrium and a rising in the throat. It is seen that attacks of this nature occurring at infrequent intervals, and of which we have only the account of the parents, would nearly always be disregarded. The diagnosis must rest on the recurrence of the attacks, irrespective of gastric irritation, the fact that they are not cured by removal of sources of irritation, the persistence of the type of the attacks, and the occasional recurrence, even in quite a young child, of the epileptic equivalent—*i. e.*, periods during which, instead of loss of consciousness, the patient does and says things entirely disconnected with the time and place.

Pleural Effusion, Acute.—In an article with this title J.

C. Clemesha¹⁴ states that this disease is more common in children than is generally supposed. When present it is often overlooked, or the presence of mischief in the chest is referred to the wrong cause. Great difficulty is met with in making a sufficiently complete examination of the chest in early life. Also many of the symptoms occurring when the disease attacks adults are absent, or, if present, difficult to discover, in children. Pain in the side is often absent in children or referred to the abdomen. In some cases cough is absent, or may be so violent and convulsive as to rival in severity that of whooping cough. The disease is often ushered in by nervous symptoms—intense headache and screaming attended by vomiting and purging, which divert attention from the chest. The temperature may reach 105°, remaining there only a few days, and then gradually falling until absorption takes place. The pulse is hard and quick at the commencement, but in cases with a great amount of effusion it is small and weak. There is considerable pallor and loss of strength even in mild cases. In secondary pleurisy, as after scarlet fever, the symptoms may be only an increase of those of the previous disease. Displacement of the viscera does not take place to the same extent as in adults. In percussion there is dulness but not flatness. Persistent dulness, even with fair respiratory murmur, should always excite suspicion of effusion, and the aspirator should be used. Auscultation cannot be relied upon and may give rise to false conclusions. The friction sound will seldom be heard. The presence of bronchophony in the chest of a child should lead us to expect fluid. On account of the smaller dimensions of children's chests and the thinner layer of fluid, there is often with the bronchial breathing increased vocal resonance—a fact which makes diagnosis still more difficult. The chief diseases with which acute pleurisy may be confounded are pneumonia, phthisis, acute hydrocephalus, typhoid fever, pericarditis, and abdominal affections. The author goes on to discuss the differential diagnosis and treatment.

Pneumonia.—J. P. Crozier Griffith¹⁵ gives a general review of the subject and cites some cases. He believes that fever should only be reduced when it occasions complications or other bad symptoms. The coal-tar antipyretics are borne well by children, but hydropathic measures are preferable. William M. Golden¹⁶ gives a general review of the subject of whooping-cough pneumonia.

Progressive Muscular Dystrophy.—Nazareno Cardarelli¹⁷ reports five cases which belong to the pseudo-hypertrophic type that appears in infancy and which affects the lower limbs as a rule. The disease is supposed to be more frequent in males in the proportion of five or even seven to one. The author does not lay much stress upon heredity as a factor, which was entirely absent in these cases; neither does he emphasize alcoholism or syphilis in the etiology, nor the previous occurrence of some other disease, such as typhoid, scarlatina, etc. In the cases which he reports the children all showed a

tardy muscular development, their first efforts at walking being made between 3 and 4 years of age, and never going beyond a very uncertain form of locomotion. The dystrophy appeared first in the muscles of the calf of the leg, which became enlarged and weak, in varying degree in the different cases. The position of the foot was in every case changed to plantar hyperextension. Contracture and shortening followed in the severe cases. In one the neck was affected, the head being turned so that the chin almost touched the shoulder. The muscles of the trunk were affected, but only slightly in three cases, while in the fourth the pectoralis major and minor were completely atrophied and the abdominal and left lumbo-sacral were somewhat impaired. This atrophy of the muscles of the trunk was not preceded by hypertrophy, and occurred simultaneously with the muscular hypertrophy of the lower limbs. As to the pathological anatomy, his conclusions, derived from a study of these cases, are: 1. That in the same muscle we will find atrophied and hypertrophied fibres. 2. That there is a proliferation of interstitial tissue and fatty degeneration of the pseudo-hypertrophic muscles. 3. That there is muscular degeneration without new formation of interstitial tissue, either fibrous or adipose, in muscles which are macroscopically atrophied. 4. In all the muscles examined there was a notable proliferation of the nuclei of the sarcolemma, less noticeable in recent cases, very evident in advanced and grave cases.

Purpura Hemorrhagica in a Newly-born Syphilitic Infant.—Gastro intestinal hemorrhages and ulceration of the small intestines occurred in a case reported by J. Jolly.¹⁸

Purulent Pleurisy in Children.—A. Rémy¹⁹ believes in operating to evacuate the pus, but thinks that puncture should always precede the operation.

Rachitic Facies.—Felix Regnault¹⁸ believes that the rachitic cranium is not enlarged, but appears so by contrast with the body, and the face especially, which are less than normal in their development. The superior maxillary bone is atrophied in its inferior portion in the transverse diameter at the expense of the maxillary sinus. This causes noteworthy modifications of the form of the orbit and nose, the vertical diameter of the orbit being increased at the expense of the superior maxilla.

Rachitis.—W. Jay Bell²⁰ gives an exhibition of casts showing the chest deformities in this disease. Louis Rosenwasser²⁹ reports a case of rachitic paralysis.

Rubeola premonitory to Measles.—In three separate years Ch. Fiessinger²¹ has noted the appearance of cases of rubeola which a month or two later were followed by an epidemic of measles. He does not draw any conclusion therefrom, but simply reports it as a fact of interest.

Sarcoma.—John C. Cotton²² reports a case in an infant 9 months old, in which operation was followed by recovery. George N. Acker²³ reports a case of sarcoma of the thymus and bronchial glands.

Sarcomatosis, A Study of.—Winocouroff²⁴ reports a case in

a boy 12 years of age. At the autopsy sarcomata (round-cell) were found in all the internal organs.

Scorbutus.—In an article on this subject Joseph Leidy, Jr.,²⁵ makes especial mention of the fact that in various proprietary infant foods and in sterilized milk a certain something is lacking in some cases which is needed for a proper nourishment of the tissues. The author states that he has not yet heard of a case occurring during the administration of pasteurized milk. An article on the subject is written by Albert H. Burr.²⁶

Skin Grafting.—D. F. Sullivan⁴ gives the result of this procedure in the case of an infant 10 days old.

Stomach, Dilatation of, in Infants.—This condition, writes Thomas H. Buckler, Jr.,²⁷ may be due to any cause which interferes with the exit from the stomach of digested or partially digested masses of food. Stenosis of the pylorus may be congenital, but the author is inclined to believe that in many infants suffering from dilatation there is partial closure of the pyloric orifice, due either to spasm of the sphincter produced by absorption of the products of fermentation, or in some cases, notably in those in which there has been gastritis of a severe character, to congestion and swelling of the mucous membrane. The stenosis may also arise from cicatricial tissue caused by corrosive substances which have been swallowed. By far the most common factor producing dilatation is impairment of the muscular force of the stomach due to atony of its coats, the result of chronic inflammation, impaired nutrition, or constitutional affections, as anemia, syphilis, tuberculosis, rickets, and malaria. Given any of these predisposing causes, some exciting cause only is needed, as the presence in the stomach of food not adapted to it either in quantity or quality.

Stomach, its Capacity and Position in Children.—Alberto Muggia¹⁷ thus sums up a long and detailed article, the result evidently of much research and experience:

1. All the means hitherto at our disposal for the diagnosis of gastric dilatation in infants are inadequate. A splashing sound along the transverse umbilical line does not necessarily mean gastrectasis, since it may be within the transverse colon. Forlanini's volumetric method [a method of aspiration described in this article], combined with "auscultatory percussion" [the stethoscope being applied to the epigastrium of the recumbent infant while we endeavor by percussion to outline the stomach], will give good results as to the capacity and position of the organ.

2. The position, form, and capacity of the stomach undergo decided modifications during the first months of intrauterine life, and even more after birth: from the first to the tenth year they are similar to that of the adult. In nursing infants the cardiac end is usually opposite to the body of the tenth dorsal vertebra, and later to that of the vertebra just below. The greater curvature, which makes its appearance only after the first year, may reach to or even beyond the transverse umbili-

cal line, without any increase in capacity of the organ. Its form is very irregular in the newly-born, and even in children of 3 and 4 years it may be like that of the newly-born. Its capacity is variable, not only according to age, but according to the individual case, but is in somewhat direct relation with the weight and stature of the child. Its capacity, which is scarcely anything at all at 3 months in the fetus, is about 10 cubic centimetres at 7 months and 25 cubic centimetres at term. In the second week of life it is 70 to 80 cubic centimetres, at 2 months 100 cubic centimetres only, at 1 year 150 cubic centimetres; with oscillations up to 420; at 2 years it is usually 300, oscillating up to 510; at 3 years it is 400, increasing to 600. For the next six or seven years it scarcely increases at all, and at 10, 11, and 12 years we have the capacity respectively of 1,300, 1,450, and 1,485, with pronounced individual variations.

3. Gastric dilatation in children is rare, and even in the rachitic, scrofulous, and tuberculous is by no means a constant symptom. Only when the capacity of the stomach is markedly above that given for a definite age, weight, and height [the author subjoins tables], and is associated with a lowered position and with severe gastro-intestinal disorders, can we be justified in diagnosing gastric dilatation. There are great individual variations within physiological limits.

Stomach Pump and Rectal Tube, The Use of the.—In an article on this subject W. Jay Bell²⁶ states that washing out of the stomach is useful in imperfect digestion in a child, which may be due to the want of digestive power or to the fermentative interference with digestion. It is often necessary in athreptic or poorly nourished children, and is due to the failure to take nourishment. Rectal irrigation will be followed by good results in ileo-colitis, gastro-enteritis, fermentative and catarrhal colitis, cholera infantum, dysentery, and other forms of fermentation and infected bowel contents. The author irrigates the rectum in convulsive seizures in children.

Subcutaneous Injections of Sterilized Salt Water (Artificial Serum) in Intestinal Infection in Infants.—H. Barbier¹² and M. Deroyer¹² describe the result of their experimentation in this line. They hold that the solution, by some mechanism as yet unknown, has a stimulant effect upon the nervous centres, or simply a stimulating action upon the organism. All observers agree, with slight variations, that these injections result in increased body warmth, the rapid appearance of a period of reaction. Some report elevation of arterial tension, improvement of appetite; and others, increase of body weight and diuresis, and increase in the proportion of urea. The serum used by the authors was a solution of sea salt, seven per cent, filtered, placed in bottles containing two ounces each, sterilized for twenty minutes in a Papin's digester. The injections are made subcutaneously in the lateral portion of the abdomen, under aseptic conditions, ten cubic centimetres at a time with a Roux syringe. The doses vary, but do not go

beyond thirty cubic centimetres in twenty-four hours—half in the morning and half at night. In one hundred and fifty cases no local effects were noticed, although the injections were made in the same spot for from eight to ten consecutive days. As to the physiological effects, the temperature is elevated from two-tenths to eight-tenths of a degree C. after each injection, is appreciable half an hour after, more marked two hours after, and after the fifth hour begins to be lowered. The minimum temperature after the second daily injection is often higher than that of the minimum morning temperature. The pulse is accelerated and becomes stronger and fuller. The general condition is modified as a result of the stimulation of the organism and the rise in temperature and in blood pressure. Patients in collapse regain their ocular reflexes and color, their extremities becoming warm. According to these writers the treatment is symptomatic and does not cure enteritis. The injections do not diminish the absorption or favor the elimination of toxic substances, but they do diminish their effects upon the nervous system and the organism, and they tide the patient over a dangerous period. They are indicated: 1. In acute infectious enteritis with hypothermia which do not call for large injections of salt water owing to excessive diarrhea. 2. In chronic enteritis with hypothermia and progressive loss of strength. They are not indicated in febrile forms, except in the course of febrile diarrhea when hypothermia or collapse occurs. These injections have no effect upon the diarrhea itself, nor upon any of the results of toxic absorption excepting collapse. It is not known whether they have any action upon general nutrition.

Teratoma Colli Strumam Cysticam Simulans.—Swo-boda²⁸ reports a case in a girl baby 12 weeks old. An operation was followed by recovery. In the tumor there were neuroglia cells, ganglion cells, fibrous connective tissue, and portions of the thyroid gland evidently adhered to it and removed with it. Some parts were broken down and fatty. Only three other cases of teratomata in the neck are reported.

Thyroidin in Pediatrics.—In a contribution to this subject Dobrowsky²⁴ reports a case of thyroidism and reviews all the literature. The author also mentions nine cases of struma parenchymatosa, eight cases of prurigo, and twelve cases of idiocy (and microcephalia), all of which were treated with thyroidin. His conclusions are: 1. Thyroidin causes a loss of weight, up to a certain point, even in healthy children. 2. It causes parenchymatous struma to shrink, but not to entirely disappear. 3. Tachycardia occurs and lasts throughout the treatment. 4. It causes rapid cure of the prurigo, but does not prevent relapses. 5. It is of little value in idiocy. 6. Diuresis and thirst are increased during the treatment, but no glycosuria or albuminuria occurs. 7. Indican is present in the urine.

Tirage in Croup.—G. Variot²⁹ gives the results of his researches into the physiological mechanism of *tirage*, which he defines as the abnormal inspiratory depression of the diaphragmatic, suprasternal, and supraclavicular regions which occurs

in croup when there are symptoms of laryngeal stenosis. The old theory of an intrathoracic vacuum he does not consider satisfactory, but he does believe that the cause is to be found in a phrenoglottic spasm. To prove his point he describes cases, as well as the results of experiments upon the cadaver, and he also describes the three varieties of *tirage*, the most common being the thoracic with sterno-chondral depression.

Trachea, Resection of the.—Föderl³⁰ reports that in a 6-year-old boy stenosis of the trachea occurred after an accident which cut it nearly in two. After tracheotomy, performed low down, the cicatricial tissue was removed and the tracheal ends sutured. Recovery followed, with normal swallowing, respiration, and speech.

Tracheotomy.—The elements of success and failure in tracheotomy in children are discussed by Hector Cameron.³¹ He believes that the greatest factor in insuring success for the relief of asphyxia during diphtheria is in early operative interference. It is better to open the trachea in an occasional case, which might possibly reach convalescence without such interference, than run the risk of losing lives by unnecessary delay. The respiratory difficulties may occur at almost any time, and when the surgeon is called upon to operate after the disease has been in existence for ten days, or even longer, there is much more hope than when interference is forced upon him at an earlier period. The reason is that in one case convalescence from the diphtheria has already commenced. When called for in the early onset of diphtheria, the operative wound seems to favor the occurrence of serious complications which are likely to be escaped if the operation is not required until the disease is somewhat spent. One of the complications of the operation is hemorrhage. To guard against this it is necessary to attend principally to three points: (1) make the incision scrupulously in the middle line; (2) make no attempt to open the trachea until its rings are visible, or felt with the forefinger of the left hand to be quite exposed and bare; (3) be careful, especially if performing the low operation, to make the deep dissection correspond as much as possible with the centre of the original wound. Secondary hemorrhage has usually been due to ulceration into the innominate vein or artery. This has, as a rule, been attributed to an ill-fitting tube, but the accident, so far as the author knows, has usually been due to a poor general state of the patient, the pressure of the instrument being only a secondary cause. Emphysema is another accident, and is most often the result of faulty operating, the wound in the trachea not corresponding in situation with that in the skin and fat. Prolapse of the thymus glands into the wound is easily reduced by the pressure of a forefinger. Fluids which are swallowed sometimes escape from the tube. In these cases it is unnecessary to feed the child by a tube passed through the nose, as it will have no difficulty in swallowing semi-fluid food, such as milk in the form of curd, meat jellies, etc. The most serious complications are those of extension of the membranous exuda-

tion to the lower part of the trachea, to the bronchi, and even sometimes to the wound, and cervical cellulitis and edema with more or less septicemia. Faulty operating may to some extent favor their occurrence, if the intermuscular spaces and loose cellular tissue of the neck be unnecessarily freely opened up. They may depend upon the original severity of the case.

Transposition of the Large Vessels in the Heart.—Augustus Caillé³² reports a case of this malformation. Notwithstanding the transposition of the large vessels, a normal development of the fetus in utero was possible as long as the ductus Botalli remained open. After the closing of the ductus Botalli, probably the only communication was through the foramen ovale. This foramen, as shown in the specimen, was about to close, so that further life became impossible.

Trephining for Cervical Abscess of Otic Origin.—A. Broca³² reports a case in proof of his belief that for the cure of the various intracranial lesions which may complicate suppurative otitis media, it is advisable to operate through the mastoid region.

Tuberculosis in Infancy and Childhood, with Special Reference to the Mode of Infection.—In an article on this subject L. Emmett Holt¹⁰ states that in 1,045 consecutive autopsies, from records of the New York Infant Asylum and the Babies' Hospital, tuberculosis was found in but ten per cent of the cases, the number being somewhat higher (fourteen per cent) in the Babies' Hospital, where only sick children are received, than in the Asylum (eight per cent). From a study of these cases and 17 others (119 in all) the following conclusions are reached: (1) Intrauterine infection in cases of tuberculosis is very rare, the child often escaping even when the mother is suffering from active disease in an advanced form; (2) infection through the alimentary tract is also very rare, and will not explain more than one or two per cent of the cases; (3) the distribution of the lesions in tuberculosis of infancy and early childhood points conclusively to infection, in the vast majority of cases, through the respiratory tract.

Tuberculous Glands in the Neck.—The article consists of a discussion by J. Crawford Renton³¹ and Harold J. Styles³¹ as to whether operative treatment should be applied to non-suppurating, partially suppurating, or completely suppurating glands. Laser³³ has an article on the frequency and occurrence of tuberculous cervical glands in children. His conclusions from exhaustive school statistics are as follows: (1) More girls than boys are attacked by measles, scarlatina, diphtheria, angina, and scrofula; (2) boys, however, have enlarged cervical glands more often than girls do; (3) the number of children with enlarged cervical glands does not decrease with age; (4) the frequency of the occurrence of enlarged cervical glands is not proportionate to the frequency of the occurrence of tuberculosis; (5) in the majority of cases the enlarged glands are due to some other cause than tuberculosis; (6) it is to be assumed that tuberculosis is not due to inheritance of the germ, but to

post-partum infection; (?) children must be guarded from breathing tuberculous dust and from direct infection by soiled hands (from the floor).

Typhlitis.—R. W. Murray³⁵ gives some conclusions on the subsequent history of children who have suffered from typhlitis, based on observations of a number of cases. He has noticed a most favorable course when the patient survived the immediate effects of the disease and operation.

Typhoid Fever.—Edouard Tordens³⁶ reports in detail a case in which death occurred from peritonitis due to perforation.

Urethrotomy, External.—Frank C. Hammond³⁶ reports a case in which this operation was performed on a child 6 years of age on account of obstruction of the urine due to an impacted calculus which was removed. The child recovered.

Vaccination and Revaccination.—C. R. Drysdale²⁹ concludes, after a study of the German plan of vaccination in infancy, followed by revaccination at the age of 12 years, that it is possible to prevent the ravages of small-pox, and, furthermore, that it would greatly facilitate the carrying out of this plan if animal vaccine were alone used. Animal vaccine is becoming much more popular with the public and medical profession. Everything that tends to remove the prejudice against the practice of vaccination should be encouraged. William S. Gottheil³⁷ discusses the different forms of vaccinia.

Varicella followed by Variola.—Joseph Babeau¹⁹ reports a case in a child who had been vaccinated.

Vulvo-vaginitis.—M. J. Comby³⁸ treats of hemorrhages in the vulvo-vaginitis of little girls. They are usually due to an extension of the inflammatory process to the urethra, causing granulations upon the mucosa of the meatus or a prolapse of the mucosa of the urethra, which bleed upon the slightest irritation. This bleeding is of slight importance and easily cured by cauterization and antiseptic washing of the affected part.

REFERENCES.

- ¹ Jour. de Clin. et de Thér. inf., Nov. 26th. ² Amer. Med. Surg. Bull., Dec. 26th. ³ Jour. de Clin. et de Thér. inf., Dec. 18th. ⁴ Med. Rec., Jan. 9th. ⁵ Med. News, Dec. 19th. ⁶ Med. News, Dec. 12th, 19th, and 26th. ⁷ Jour. de Clin. et de Thér. inf., Nov. 26th. ⁸ Jour. de Clin. et de Thér. inf., Dec. 10th. ⁹ Jour. de Clin. et de Thér. inf., Dec. 3d. ¹⁰ Med. News, Dec. 12th. ¹¹ Med. Rec., Dec. 19th. ¹² Rev. mens. des Mal. de l'Enf., Dec. ¹³ Jour. Amer. Med. Assoc., Oct. 31st. ¹⁴ Buffalo Med. Jour., Dec. ¹⁵ Med. News, Dec. 5th. ¹⁶ Jour. of Pract. Med., Oct. ¹⁷ Il Policlinico, Oct. 15th, ¹⁸ Rev. mens. des Mal. de l'Enf., Nov. ¹⁹ Jour. de Clin. et de Thér. inf., Dec. 24th. ²⁰ Jour. Amer. Med. Assoc., Nov. 21st. ²¹ Jour. de Clin. et de Thér. inf., Nov. 25th. ²² Med. and Surg. Rep., Nov. 14th. ²³ Arch. Ped., Dec. ²⁴ Arch. für Kinderh., vol. xxi., No. 2. ²⁵ Bost. Med. and Surg. Jour., Oct. 29th. ²⁶ Jour. Amer. Med. Assoc., Nov. 7th. ²⁷ Atlantic Med. Weekly, Nov. 14th. ²⁸ Wien. Klin. Woch., vol. ix., No. 46. ²⁹ Jour. de Clin. et de Thér. inf., Nov. 5th, 12th, 19th. ³⁰ Wien. Klin. Rundschau, vol. x., No. 47. ³¹ Brit. Med. Jour., Sept. 12th. ³² Arch. Ped., Oct. ³³ Deutsch. Med. Woch., vol. xxii., No. 47. ³⁴ Brit. Med. Jour., Sept. 19th. ³⁵ Jour. de Clin. et de Thér. inf., Nov. 5th. ³⁶ Med. News, Nov. 28th. ³⁷ Med. Rec., Nov. 28th. ³⁸ Bull. de Mem. de la Soc. méd. des Hôp. de Paris, Oct. 23d. ³⁹ Med. Rec., Nov. 28th.

THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XXXV. MARCH, 1897. No. 3.

ORIGINAL COMMUNICATIONS.

NOTES ON THE DIAGNOSIS AND TREATMENT OF DISEASES
OF THE FEMALE URINARY ORGANS.¹

BY

ALEXANDER J. C. SKENE, M.D.,
Brooklyn, N. Y.

THERE are keys to all the locks in the science of medicine, but some of them are hard to find. At least, I have not been able to open the way to an entirely new subject worthy of your attention on this occasion. I have only been able to pick up a few items to offer you in the form of addenda to an old subject which is, I presume, as familiar to you as to me.

Some progress has been made recently in the diagnosis of the diseases of the urinary organs in women, especially in improving and more clearly comprehending old ways. The onward steps have been in the direction of simplifying old methods rather than the discovery of new. The minds of investigators were long turned toward the discovery and invention of instruments for observation and exploratory operations that accurately reveal morbid anatomy, to the neglect, in some

¹Read before the Section on Gynecology, College of Physicians of Philadelphia, December 17th, 1896.

degree, of the careful study of symptomatology and the natural history of disease as means of diagnosis. In more recent times the medical mind has recurred to the fact that an examination of all of the phenomena of scarlet fever or syphilis will enable one to make a diagnosis as surely as the finding of the germs of these diseases by microscope or germ culture, though the former way may take a little more time. So it is in relation to much of the gynecologist's work. At the same time there still remains the appreciation of the decided advantage and necessity for knowing all ways of investigation.

The study of the structural changes in the urinary organs as seen through the endoscope and cystoscope, and observation of the symptoms and functional derangements which arise therefrom, have made it possible to make a diagnosis in most of the inflammatory affections from the clinical history alone. Great as has been the value of instruments for inspection and exploration of the urinary organs, they have been as useful in guiding the diagnostician in making a diagnosis without their use. In order to make the evidence of this more clear, it is only necessary to state the fact that many of the diseases which have been discovered by cystoscopic examination are clearly indicated by symptoms and the products of disease found by analysis of the urine, and that a diagnosis can be made as accurately upon these evidences as by direct inspection of the urethra and bladder. To a certain extent this holds true also in diseases of the ureters and kidneys. It is true also that most of the functional diseases caused by displacements of the bladder or pressure upon it by neighboring organs can be detected by the vaginal touch and the use of the sound, and by the fact that the urine is free from the products of inflammation. So, also, examination by touch and urine analysis enables one to make a diagnosis in all of the nervous affections.

Urethritis that extends up to the neck of the bladder is an exception, because the clinical history has so many features indicative of cystitis that the diagnosis cannot be made in the way just indicated. The urine, in such cases, contains products of inflammation, and it is not easy to determine whence these products come. One may settle that point (in case the patient can retain several ounces of urine) by having a part of the urine passed into one vessel and the remainder into another. That which comes last is normal. Objection may be raised to this method of investigation on the ground that more skill and time are required for the examination of the urine than for the

use of the cystoscope: but, on the other hand, it may be claimed that every practitioner can make a urine analysis or find a neighbor who can do so, while there are many who cannot use a cystoscope, and all patients are more annoyed by a physical exploration than by an examination of the urine. The diagnosis of diseases of the ureters and kidneys occurring in connection with cystitis has always been very difficult, even with the aid of all the means that have ever been discovered or invented. Any ray of light, however faint, that one can let in on this subject must be of some interest.

The more acute inflammations of the ureters arising from injuries during labor or from the presence of calculi can be made out by a careful study of the clinical history, but catarrhal affections, which are usually secondary to cystitis, are not easily detected. The prominent symptoms are slight pain of a burning character in the ureter, at times becoming acute and extending up to the kidney. There is usually tenderness along the ureter when the pain is at its height. The severe pain subsides abruptly and immediately after the discharge of a small mass of mucus, which is sometimes tinged with blood. Evidently the attacks of acute pain are caused by an accumulation of thick mucus, which blocks the ureter until forced out by the pressure of the retained urine in the upper part of the ureter and pelvis of the kidney. The finding of this mass of mucus is the most positive evidence of the disease. This requires some time and careful watching. When the ureters alone are affected one has but to have the nurse watch the urine with care. Unfortunately for the diagnostician, cystitis is present in many of the cases. Then it is necessary to keep the bladder free from mucus by frequent washing, in order to make sure that the mucus passed comes from the ureter. Of course one is dependent upon the skill and faithfulness of the nurse in attendance for the discovery of this physical sign. In fact, I am indebted to a nurse, who gives most of her time to caring for this class of cases, for calling my attention to this matter. The cystoscope is not of much value in examining the ureters. I have noticed their mouths red and pouting, but not sufficiently so to indicate anything definite. Once I saw a tiny shred of mucus hanging from the mouth of one ureter, but, while it confirmed the diagnosis in that case, it can be of no general utility. Catheterizing the ureter is also no help in diagnosis, but in the treatment it is useful. This use of the urethral catheter for diagnostic and therapeutic purposes has been

greatly simplified by recent discoveries, but this may be referred to again if time permits.

One of the difficulties that long perplexed the diagnostician was to ascertain the condition of the kidneys in cases of cystitis. The products of the cystitis made the analysis of the urine almost useless in the investigation of nephritic diseases. The first step toward clearer light on this subject was taken in washing the bladder clean of all pus and mucus, and then collecting for examination the urine first secreted after the washing. This was a great help, but was not fully satisfactory because only small quantities could be obtained at a time.

I succeeded much better in estimating the condition of the kidneys by determining the quantity of urea eliminated, and not by the presence or absence of albumin or casts. It is only necessary to remove the products of the cystitis by filtration from the specimen of urine and find out in the usual way the quantity of urea. This method of investigation gives a far more accurate idea of the state of the renal function than the finding of albumin and casts. Again, by estimating in this way the degree of impairment of function one obtains an idea of the extent of organic changes that have taken place in the kidneys. This is especially reliable if the impairment of function is persistent. There is an exceptional condition in which a diagnosis cannot be made in this way, and that is when one kidney only is diseased. Then the diagnosis cannot be made without the use of the ureteral catheter. In fact it is only in such cases that I need to catheterize the ureters for diagnostic purposes. In all other conditions of the kidneys a diagnosis can be made without resorting to physical exploration with the cystoscope, endoscope, or urethral catheter.

I may illustrate quite fairly the relative merits of the cystoscope and endoscope as means for diagnosis and original discovery of the pathology of disease, by relating the history of a case discovered by instrumental exploration and another of the same kind diagnosticated without direct inspection.

A married lady had had some uterine disease, but was quite free from any pelvic trouble at the time she was attacked with the disease in question. At first she had very acute lancinating pains that came and went, at irregular intervals, with the quickness of lightning. There was a continuous burning pain in the urethra. Urination caused one or more stabs of the cutting pain and increased the burning in the urethra for a time. She gradually grew worse, the violent shooting pains

came more frequently, and urination caused paroxysms of burning pain that were simply agonizing. The patient possessed remarkable self-control and had by experience learned to endure pain, but during the paroxysms brought on by urination her tears and profuse perspiration testified to the extraordinary character of her suffering. The urine was examined repeatedly, but no signs of renal or cystic disease were found. An examination of the urethra with the endoscope brought to light three small red spots, some distance apart, but all in the middle portion of the urethra. They were circular, well defined in outline, and bright red in color—rather like incipient ulcers; but there was no molecular death or destruction of the membrane, only a denudation of the epithelium. They were exceedingly tender. These spots were so like the base of a herpes vesicle after the cuticle has been removed, and the character of the pain was so much like that of herpes, that the true nature of the lesion was suggested. Doubts were raised about the diagnosis by the fact that the patient had suffered from frequent attacks of malaria, which often causes functional derangements and neuralgic pains in the urinary organs. I thought that there might be some element of the kind in the case, but against that were the facts that I had never found any such lesions in malaria, neither had the pain been so great. About this time I had read a discussion of malaria as a cause of herpes by Dr. Winfield, and that strengthened my opinion in regard to the diagnosis. Quinia was given in full doses and appeared to give more relief than anything else. Not long after seeing this case another came in consultation. The patient was nervous and went almost mad with the pain, so that the doctor in charge had to keep her narcotized. From the history I made a positive diagnosis of herpes. Exactly the same lesions were found in the urethra by a subsequent endoscopic examination. She was put upon quinia and local applications of cocaine and iodoform, which proved effectual. The endoscopic examination and the response to the anti-malarial treatment confirmed the diagnosis. Taking the two cases together, you will see that the one illustrated the value of the endoscope in discovering the pathological conditions of the organic lesions, and the other shows how accurately a diagnosis can be made without aid from instrumental inspection when the pathology has been discovered.

Just at this point a word may be said regarding the treatment of uncomplicated urethritis and cystitis. The best results

are now obtained by the mildest local applications and by constitutional treatment—that is, remedies which correct abnormalities of the urine—and those that have a specific effect upon the urinary organs, such as santal midi. All caustics have been given up, and I now use to cleanse the mucous membrane borax and sterilized water, and mild astringents and sedatives—tannin, subgallate of bismuth, and iodoform, for example. I have adopted these principles in therapeutics from observing that cases treated by physicians without local applications do better than those treated locally by surgeons with strong solutions of nitrate of silver, sulphate of zinc, and such like. All cases that are curable by instillations and irrigation yield to this mild treatment and are made much worse by heroic measures.

Next in order comes the class of cases with advanced structural changes of the bladder and urethra, such as ulceration, hyperplasia, and neoplasms of various kinds. In the diagnosis of these diseases the surgeon is largely dependent upon the endoscope and cystoscope. In fact a diagnosis cannot be made without instrumental inspection. Some original contributions to this department and some modifications of older ways and means of diagnosis have been made rather recently that are deemed worthy of a brief notice.

You know that a few years ago Howard A. Kelly gave to the profession his method or system of investigating the diseases of the urinary organs of women, which I consider a most valuable contribution to this branch of surgery, especially in the management of the class of cases now to be considered. The original element in Kelly's method is placing the patient in the Trendelenburg or knee-chest position while using the endoscope for the purpose of making a diagnosis, and in catheterizing the ureters, and for direct treatment of the urethra and bladder. His modification of the endoscope and his way of using it are no doubt improvements of great value, but are not likely to supplant other ways of exploration for diagnostic purposes.

For inspecting the bladder and urethra the older ways are preferable, and in catheterizing the ureters the newer method of doing so, with the aid of the cystoscope, is easier for some of us. The objections to the general employment of Kelly's method of examination are that rapid and extensive dilatation of the urethra is necessary, and that requires the patient to be anesthetized. Taken altogether it makes the examination really

a formidable operation. Dilatation of the normal urethra is an outrage that often does damage that is not easily relieved. Since the discovery of the germ causation of surgical diseases practitioners have felt safe in being surgically clean in their work, and have become unmindful of the fact that injuries such as abrasions, contusions, or lacerations of the mucous membrane of the urinary tract often cause serious trouble. There is no reliable tendency to repair injuries of tissues that are continually bathed with urine, and when the urine is abnormal very serious results may follow the slightest traumatism. In view of these facts, and recalling the results of the practice of a few years ago when dilatation of the urethra was in fashion for diagnostic purposes and for the relief of certain affections, one shrinks from the risk of adding to the list of cases of incontinence and chronic urethritis. I must confess that some slight disturbance often followed the use of the cystoscope of Nitze and Leiter, which raised the same objection to its use as to Kelly's instrument. Owing to the sharp flexion at the point of the instrument it could not be passed through the ordinary sized urethra without causing pain and doing some little damage. These difficulties were all overcome by having a cystoscope made straight. This improvement has been a great help to me and may be worthy of your notice. With this instrument the female bladder can be explored without pain or injury, excepting when its walls are thickened and contracted so that it will not hold the required amount of water. In such cases Kelly's method meets the requirements most admirably. At one time I was unable to use the cystoscope when there was hemorrhage from vascular neoplasms or ulceration. Then I looked to Kelly's method for aid, but I found it was not satisfactory because the blood obscured the field of vision and one could not see what it came from. This obstacle can be overcome by prolonged washing of the bladder with a solution of acetic acid, which controls the bleeding, so that there has been no trouble in this respect since adopting this plan.

In cystitis and urethritis together the use of the endoscope and cystoscope is painful, but the application of cocaine overcomes that difficulty. Instilling into the urethra a two per cent solution of that local anesthetic renders the parts tolerant to the use of the instruments in most cases. To obtain the desired anesthesia a mild solution should be repeated as many times as is necessary. That is safer and more efficient than one application of a strong solution.

I can safely say that with the straight cystoscope the bladder can be examined with as much facility as one can make a speculum examination of the uterus and vagina, and with no more distress to the patient. And I am sure that it is not claiming too much to say that all structural changes, gross and minute, can be seen and studied far more clearly than by any other method of inspection yet discovered. For examination of the urethra I still use my old endoscope, perhaps because I am used to it, but I must acknowledge that the older endoscope, improved in mechanism by Kelly, is more easily employed and satisfactory to the majority of surgeons.

In certain diseases of the kidneys, when one is normal and the other is inflamed, tubercular, or suppurating, the urine must be obtained from each in order to make a diagnosis. This, of course, is accomplished by catheterizing the ureters. To do this by touch, the original way, was for me so very difficult that I dreaded it. In many cases I spent much time, caused patients distress, and did some damage to the ureters and bladder, and then failed as often as I succeeded. It was with a satisfaction amounting to boyish glee that I learned Kelly's ways of using the catheter through the endoscope. I took up the practice with no little enthusiasm, and, though it was not easy in all cases, it was a great gain. Still there was the necessity in the great majority of cases for anesthesia and dilatation, which I always wished to avoid; hence, while appreciating a good thing, I desired something better. This I found in the Leiter cystoscope with the ureteral catheter attachment. This attachment was added originally to the flexed cystoscope, and I had it applied to the straight instrument, so that it is now easily handled and answers the purpose very well. In some cases the ureteral openings are hard to find, and when found it is difficult to guide the catheter into them, but such rare and peculiar cases are as difficult to manage with the Kelly method. This is about all that is new with me in the way of diagnosing ulceration, hyperplasia, and large and small neoplasms of the urethra and bladder.

The treatment of ulcerations and small neoplasms of the urethra and bladder has been completely revolutionized within the past five or six years. The changes that have been made are all for the better, in my opinion, but of this you will decide. I now use the galvano-cautery instead of strong caustics that were employed in days gone by. Strong caustic injections for ulceration of the bladder and urethra, and similar applications

to new growths, were always unsatisfactory. They caused no end of suffering and often failed to relieve or cure, and, when successful in arresting disease, scar tissue followed that was troublesome—extremely so, many times. The great objection to the use of caustics for the purpose of destroying diseased tissue is that the effect cannot be controlled. If one destroys all of the diseased tissue some of the normal tissue is sure to be scorched, and if one guards against the latter he fails in the former.

I now ask your attention to some items that may be of interest in the treatment of ulcerations and neoplasms of the urethra and bladder. But first a hint about the treatment of catarrhal urethritis. Dilatation of the lower ends of the ureter has given relief in catarrhal inflammation. I presume the benefit comes from giving free escape for the mucus. Free drainage is an important factor in the treatment. I have tried washing out the ureter, and instillations of many kinds of solutions, but without benefit, and sometimes have made matters worse. Dilatation and internal remedies—santal midi being the most efficient—have been most successful. This brief mention of the subject is made here because I have nowhere given place to it in my other writings.

The advantages of the cautery in treating ulcers and neoplasms are that its action can be thoroughly controlled. Morbid growths and diseased or ulcerating tissue can be completely destroyed, while the normal tissues are left uninjured: The line of demarkation between the charred and normal tissue can be sharply defined by the operator, and the healing process goes on rapidly and without pain. By the time the eschar separates the parts beneath have become sufficiently repaired to withstand the contact of urine, and so the recurrence of inflammation or ulceration is guarded against. When the cautery can be properly used the results are very gratifying. There was much trouble in getting at new growths, ulcers, and fissures at the neck of the bladder, especially until Kelly introduced his method; but after that I found the cautery could be used at any point that could be brought into the field of the endoscope. In treating neoplasms a fine cautery point is used, touching repeatedly the parts until all new or diseased tissue is destroyed. For ulcers a flat point is used, passing it over the diseased surface in about the same way that one would apply a solution with a pencil. Of course small neoplasms and ulcers only can be treated in this way. Since adopting this plan of

treatment I have been able to cure cases of cystitis with ulceration and vascular proliferations that formerly baffled me completely. Such cases could only be relieved by drainage through a vesico-vaginal fistula, which Emmet taught us to establish in bad cases.

The treatment of large tumors of the bladder has been, as you know, by doing suprapubic cystotomy and removing the neoplasm with the scissors or curette, controlling the hemorrhage by pressure or styptics, and then draining. The results have been very unsatisfactory. Some did not recover, and those who did required a long time to do so.

There certainly was room for improvement in this, and I have tried to do better by adopting a new way, which I desire to submit for your judgment, and that is compression and desiccation with electric heat.

The process consists in seizing the tissues to be treated—the base of a vascular tumor of the bladder, for example—in a clamp or forceps, and then heating the inner side of the blade of the forceps with electricity to a degree sufficient to desiccate the tissues under pressure, thus arresting all hemorrhage and reducing the stump to the smallest possible size.

The principle of the procedure is not new. Nearly twenty years ago I learned from Dr. Thomas Keith his method of treating the pedicle, in ovariectomy, by the clamp and cautery, and I have had ample opportunities to observe that the results are vastly superior to those obtained by any other method. At the same time I found that it was no easy matter to use the means which give such desirable results. Naturally this inclined me to seek some simpler, easier way of attaining the same object—that is, to treat the pedicle of tumors and arrest bleeding in surgical operations generally. The only difficulty to be overcome was in the management of the heat element. In Keith's way the heat was obtained by applying a heavy cautery iron to the compressing instrument and heating it sufficiently to desiccate, but not char, the tissues under pressure. To obtain the desired heat in this way was difficult—so much so that it was used by very few surgeons. It could not be employed at all in removing tumors from the bladder.

The advantages of this mode of operating are that it is a certain and reliable way of closing isolated vessels, or those embedded in masses of tissue—like an ovarian-tumor pedicle, for example. At the same time that bleeding is arrested all lymphatics are sealed up, this preventing absorption of septic

material. Nerves which accompany the vessels are immediately and completely devitalized, and hence there is less pain and irritation in the stump. The heat employed sterilizes the parts involved, and therefore the operation is perfectly aseptic ; and most important of all is the fact that it leaves the stump of a pedicle or the end of an artery in a condition requiring the least reparatory care, so that recovery is more prompt and uneventful. My impression is that the vessels and tissues treated in this way become first hydrated and absorbed or organized, in the same way that inflammatory products of certain kinds become vitalized. When I asked Dr. Keith about this he said that he did not know exactly what became of the stump of the pedicle treated in his way, but he knew very surely that it gave no trouble or anxiety to patients or the surgeon. In this my experience agrees with his. I have never known trouble of any kind to occur, after an operation, that could be attributed to this method of controlling hemorrhage. No such results can be obtained with the ligature. Even the modern ligature, that is (with much care and trouble) made aseptic and can be left in the tissues, has its faults and shortcomings. The catgut ligature is very difficult to sterilize and keep surgically clean, and it is liable to slip and permit hemorrhage. In being disposed of by absorption or being walled in or encysted it causes less or more irritation. Dead animal tissue, though sterile, cannot be taken care of in a wound without causing some disturbance. Silk and unspun silk (called silkworm gut), properly prepared, will not decompose, and, being less likely than catgut to slip, have some advantages, but are more objectionable still than catgut, because they cause irritation, and in the effort often made to escape or be thrown out they enter the abdominal or pelvic viscera and do great damage. There are many cases recorded of trouble from ligatures of this kind long after recovery from operations.

The method of operating is as follows: The tumor being exposed, its base is grasped by the forceps and the electricity turned on until the required heat is obtained, and it is continued for thirty to ninety seconds, according to the quantity of tissue to be treated. When the base of the tumor is too large to be all included in the forceps at once it is treated in sections. The way of determining the temperature of the forceps while in use, the length of time that the heat should be continued, and the way to guard against charring the tissues, are matters of detail which I shall give to the profession at an early day.

The special advantages of this compression and electric-heat method in operating upon the bladder will be apparent to you when you recall the fact that ligatures are not applicable in controlling bleeding in these operations. After considerable experience in operating in the old way for vascular tumors of the bladder I find the new way very gratifying.

The instrument which I use may be described as a forceps clamp. It is constructed so that the base of a tumor can be seized and compressed on four sides. This prevents spreading of the tissues under pressure, which takes place when the ordinary compression forceps is used.

In the treatment of prolapsus of the bladder and anterior vaginal wall I practised the plastic operation devised by Sims and modified by Emmet, Noeggerath, and others; but finding that eventually they all failed, and that others had the same experience, though few if any took pains to acknowledge this, I tried mechanical support with indifferent results. I then devised an operation for the relief of hernia of the bladder which I found equally efficient in prolapsus. As the operation has not been adopted by others, so far as I can learn, excepting among my hospital associates, I presume it has been overlooked. A larger experience has confirmed my opinion that it is worthy of more attention than has been given to it. The operation consists in making a small opening in the vaginal wall at the junction of the urethra and bladder and at the lower margin of the hernia. Through this opening a probe is passed and pushed up toward the cervix uteri between the vaginal wall and the bladder. A delicate forceps is then introduced into the tunnel made by the probe, and its blades are spread forcibly apart. The vaginal wall and bladder are thus completely separated to the extent of the hernial opening in the muscular layer of the vagina or cystocele, and upward pressure is made with the probe to keep the bladder in place, while traction is made upon the vaginal mucous membrane at the upper part. This brings the lateral surfaces of the wall of the vagina together and develops a ridge of tissue. Sutures are now introduced to hold the parts in position. The mechanism of this proceeding is the same as in making a tuck. The ridge or tuck projects into the vagina like the segment of a circle, but soon flattens out and overhangs the line of sutures. Care should be taken not to make the sutures tight enough to strangle the tissues, but only sufficiently so to hold them together until they unite.

I am not unmindful of the fact that with improvements in

the surgical treatment of dislocations of the uterus and in the restoration of the pelvic floor there are fewer cases of prolapsus of the bladder that require special treatment. Still I find quite a few cases in which this operation gives relief from frequent urination and partial incontinence caused by prolapsus.

Some valuable contributions have recently emanated from Philadelphia on the surgical injuries of the ureters and bladder. I have seen in recent years more injuries of the ureters produced during vaginal hysterectomy than I have read or heard of, and, as they did not all occur in my own practice, I presume that those accidents happen more frequently than might be expected from the records on hand. I may mention that I have observed that the majority of vesical fistulæ produced during hysterectomy close of their own accord if the bladder is drained, unless a very large section of the bladder wall has been removed. In that condition a prolapsus of the anterior vesical wall protrudes into the vagina and prevents closure of the opening. Another very surprising thing that I have observed is that when a ureter is divided and the bladder is opened at the same time, complete recovery may take place. I have seen two cases of this kind. In one the ureter was caught in the clamp and cut off, and the bladder was opened and left open. There was leaking from the bladder from the beginning, and after the forceps was removed urine began to discharge from the ureter, but that patient completely recovered and is living and well. It is now three years since the operation. In the other case the ureter was ligated along with the uterine artery and the bladder was opened. The accident to the ureter was discovered and the ligature was removed. The case was a very bad one, the cancerous disease being far advanced at the time of operating. After leaking for about three weeks the openings closed, and the patient is now well and living in Philadelphia. I believe it is nearly four years since the operation.

I presume that the repair takes place by the contraction of the opening in the bladder drawing the end of the ureter into itself and then closing below. When the ureter alone is divided no such fortunate result can take place, and reimplantation is required. No easy and reliable way of doing this through the vagina has come under my notice.

SYMMETRICAL MALFORMATIONS.

BY

ARTHUR STERN, M.D.,
Surgeon to the Alexian Brothers' Hospital,
Elizabeth, N. J.

(With one illustration.)

ZIEGLER says that a malformation takes its origin in one of the following ways: either it is due to an hereditary abnormal development of the ovum and sperma, or to the fact that the germ undergoes a primary pathological variation or becomes



Symmetrical malformation.

affected by injuries from without. Theoretically speaking, then, it follows that a symmetrical malformation must be ascribed either to an hereditary predisposition or to a pathological variation of the germ, since in respect to it external injuries cannot be considered.

The illustration represents a case of perodactylus symmetricus upon which I happened quite recently, and which is not without interest. A glance at the figure will show that the third finger and the metacarpus are wanting on both sides. It may be observed that the child is 6 years of age, has always been in robust health, and, notwithstanding the malformation, can use its hand for all purposes with the utmost freedom.

Now, we know that in the fetus the members begin to differentiate in the fifth week, appearing at first like little lumps or knobs, proximal and distal, on the side of the trunk; these lumps, increasing in size, divide into two parts, of which the distal becomes the hand, developing into symmetry between the sixth and seventh week. In the case here considered, therefore, it follows that, if we exclude heredity (and a most careful investigation of the family history discovered nothing to which the irregularity might reasonably be assigned), the malformation must have had its inception prior to the sixth uterine week. Incidentally I may mention, as a matter of curiosity, that the mother became frightened in some manner, during her pregnancy, by a live lobster, and attributes to that incident the malformation of her child.

218 EAST JERSEY STREET.

CHOREA.¹

BY

E. L. TOMPKINS. M.D.,
Washington, D. C.

CHOREA is essentially a child's disease, although not invariably so.

The name is derived from the Greek *χορεία*, a dance, and, on account of the peculiar and characteristic motions, the disease has been associated with the word "dance" in nearly every known language; thus its synonyms are St. Vitus' dance, St. Guy's dance, St. Anthony's dance, dance of St. Modesti or of St. John.

Chorea is a functional disease, a neurosis, characterized by jerky motions, or sometimes wavy undulations, which seem to

¹ Read before the Washington Obstetrical and Gynecological Society, June 5th, 1896.

involve certain muscles, or even those of whole limbs, the muscles of the face or neck or of the arm or leg. The jerking of the muscles of the arm or leg, for example, produces so much inco-ordination that the person can with difficulty put a glass of water to the lips or walk straight ; and this is so generally known that when the child is brought to the physician the latter is often told that the child is suffering from St. Vitus' dance.

Gray (Landon Carter) gives a rather interesting history of the disease and tells how it is associated with the word *dance*. It was known as early as the middle ages. Men and women would form circles and dance until they were exhausted, as is done in the Ghost or Messiah dance of the Indians. Vivid hallucinations of religious nature usually accompanied these attacks. In 1374 such an epidemic occurred in the Netherlands and whole communities were disorganized. In 1418 it broke out again, this time in Strassburg, and was called St. Vitus' dance, "because the legend ran that St. Vitus, just before he suffered martyrdom with other early Christians in the time of Diocletian, had prayed to God that He would protect from the dancing mania all those who should solemnize the day of commemoration and fast upon its eve, and a voice issued out of heaven saying his prayer was accepted; so that St. Vitus became the patron saint of those afflicted with the dancing plague, as St. Martin was at one time of those suffering from small-pox, St. Anthony of those suffering with the hellish fire, and St. Margaret of puerperal women."

Chorea is divided into several varieties, the most common being Sydenham's chorea, named after an English physician who first described it. Then there is Huntington's chorea, which is hereditary, affecting many generations, begins between 30 and 40 years of age, accompanied by great mental exhaustion, and is very fatal.

There is also athetoid chorea, which is of the undulatory kind and resembles athetosis, hence its name. Other forms are chorea of pregnancy, poretic chorea, post-hemiplegic chorea, chorea with loss of consciousness, and, finally, habit chorea, which is a peculiar grimace or gesture or shrug of the shoulders, an acquired habit.

Chorea major, so-called by some, is, according to Dana, not chorea, but hysteria.

Gray describes a peculiar form of chorea, which he denominates "chorea with rapid pulse and rapid respiration," which

develops suddenly after a slight attack of articular rheumatism. The chorea of pregnancy may be either a complication or sequence of the pregnancy. Gowers states that some of the patients who suffer from this trouble have had in earlier life either chorea or rheumatic fever, or perhaps an attack of rheumatic fever has immediately preceded the chorea; and he cites the case of a patient who had no chorea during the first pregnancy, but in the interval between the first and second pregnancies had an attack of rheumatic fever, and during the second pregnancy suffered from chorea.

Chorea of pregnancy must be very rare, as Gray says he never saw a case of it, and that the death rate was as high as thirty-three per cent. Sinkler, of Philadelphia, describes a number of cases.

Although there is what is called chronic chorea, all claim that chorea is of a limited duration and that the prognosis is favorable.

At or about the age of puberty chorea sometimes assumes a violent form, even resembling acute mania. I have a case of chorea under observation at present who becomes so violent at times as to butt his head against the furniture, and whose parents have thought that he was trying to commit suicide.

Exciting Causes of Chorea.—All authors seem to designate fright or some of the emotions as the chief exciting cause. Hammond says that those connected with the emotions occupy the first place. One author claims that fright is sometimes a cause, and goes on to say that in predisposed cases chorea, especially if it has occurred before, may be started up by some reflex irritation, such as eye strain, nasal irritation, tight prepuce, a bound-down clitoris, or lumbricoid worms; that secondary attacks brought on by reflex causes may be explained in the same way as secondary attacks of whooping cough brought on by bronchitis—namely, that the local irritation causes in a reflex manner a discharge of nervous action along the same well-worn channels as in the original attack. Hence secondary attacks may not always be true chorea, as they are not true whooping cough in such cases as the above.

Gowers says that the immediate cause of chorea is generally emotion, usually fright, and rarely mental distress. It is rare in boys over 14 and not uncommon in girls up to 20. The interval between the fright and chorea rarely exceeds a week, is sometimes shorter, and some cases begin immediately. Occasionally the influence is traumatic. The three most important

causes, according to Gowers, are acute rheumatism, organic heart disease, and pregnancy. Regarding the combinations of the conditions, rheumatism, heart disease, and fright, he found that cardiac disease was present, either before or during the chorea, in three-fourths of the cases in which there was a history of rheumatism, while without such a history there was heart disease in only one-third. Fright was the apparent cause of the chorea in a rather larger proportion of the patients who had had rheumatic fever preceding heart disease than of those who had not.

A. L. Ranney¹ is very positive in his conclusions in regard to the causative action of eye strain. I quote his remarks:

“1. Choreic subjects belong to one of two classes—(a) those who tend to get well under almost any treatment, or even without treatment, and (b) those who fail to get relief from any medicine.

“2. The chronic form of chorea is one of the most serious and hopeless of nervous maladies when treated by drugs alone.

“3. Both forms of chorea are based, as a rule, upon a well-marked neuropathic or tubercular predisposition.

“4. The pathology of chorea is not known; no one has ever proved that it is a constitutional disease.

“5. The percentage of hypermetropia, usually latent in choreic subjects, is extremely large, apparently about seventy per cent.

“6. The glasses ordered for choreic subjects should be most carefully fitted to the face and accurately centred to the pupils.

“7. An investigation for latent heterophoria should always be made, in choreic subjects, with the greatest care and patience.

“8. The relief of marked heterophoria should be finally attained only by graduated tenotomies upon the muscles exhibiting abnormal tension or by advancement of the tendons exhibiting defective power.

“9. Prismatic glasses are not curative. They should not be given for constant use.

“10. Choreic subjects are usually rapidly cured by eye treatment alone.

“11. The eye problems encountered in choreic subjects are not, as a rule, as complicated and difficult to solve as those of epileptics.

“12. The spasmodic movements which accompany and indicate organic lesions of the brain—as, for example, those of

¹ New York Medical Record, xlv., 1894.

leptomeningitis—exist in but a small proportion of choreic subjects, and are usually associated with other evidences of disease.

“13. The removal of young choreic subjects from school or of adult choreic subjects from business is a step commonly taken by most physicians while treating chorea by drugs.”

He then reports, to confirm these conclusions, thirteen cases in which the treatment of the eyes effected improvement or cure.

E. T. Milligan¹ reports an interesting case of fatal chorea of pregnancy: “A primipara of 26 years developed chorea of the right side when two months pregnant, which continued until her death six days after her confinement. Her mother was of nervous temperament and two sisters were rheumatic. The labor lasted eight hours. Everything went well till the sixth day, when her mother visited her and she become greatly excited and ran around the room. The chorea immediately returned with increased violence, and was accompanied by great pain in the right side of the body. After four hours of intense suffering paralysis of the right side set in, followed by coma and death in six hours. Autopsy four hours afterward. The uterus was well contracted and the peritoneum healthy. The edges of the mitral valves were studded with tiny vegetations, a true endocarditis being present. The middle cerebral artery on the left side, beyond the origin of the anterior choroid, was plugged with an embolism of the same structure as that of the vegetations of the mitral valves. There was also rupture of one of the smaller branches of the middle cerebral which supplies the corpus striatum. His conclusion was that the chorea was due primarily to endocarditis.”

Sometimes the heart lesions will entirely disappear, as would appear from the following case, reported by Edward Mackey:² “A boy 9 years old had been paddling in the sea and suddenly was taken with pains in his joints and afterward could scarcely walk. He had two aunts who suffered from rheumatism. He was thin and looked delicate, but was not markedly anemic. He had choreic movements of head, arms, and tongue; respiration irregular and a few râles in lungs: had a systolic bruit at apex; had, besides, a remarkable development of subcutaneous nodules, from thirty to forty along spinous processes, spines of scapulæ, etc. Arsenic and potassium iodide were given and the boy kept in bed. In one month the

¹ Medical Record, May 2d, 1896.

² London Lancet, 1894.

bruit and many nodules had disappeared. In another month all the symptoms had disappeared and the boy was discharged, cured."

C. W. Townsend¹ reports one hundred and forty-eight cases of chorea, and goes particularly into their relation to rheumatism and endocarditis. There were sixty-one males and eighty-seven females. All were under puberty, so the preponderance was probably due to constitution, habit, rather than to sex. He gives an interesting chart of the cases, and states that the chart is made intelligible by the assumption that the mental pressure at school and its accompanying physical depression act as exciting causes of this disease. As a consequence the results begin to be shown in the last half of the school year, in March, by the greater number of cases of chorea. In April, May, and June there are many more cases, as the strain of examinations is greatest. In August and September they begin to fall off, and break out again in October, and he quotes Sachs,² interpreting in this way the monthly variations of this disease and the outbreak on the opening of school in the autumn. Among other causes, as mentioned by Townsend, are excessive tea-drinking, debilitated state of the system, nervous constitution due to anemia or to neurotic inheritance. Relation of chorea to rheumatism and endocarditis:

	No. of Cases.
Chorea	148
Heart murmur.....	44
Rheumatism.....	31
Organic heart disease.....	21

In some cases rheumatism followed the chorea, in others it preceded it. The "growing pains" of children are often those of rheumatism and are overlooked. Endocarditis may accompany very slight rheumatism.

After reporting an interesting case of a young girl who had heart disease following chorea, and the chorea itself brought on by fright of a dog, he states that: 1. The proportion of rheumatic cases is too large for mere coincidence. 2. Chorea is often followed or accompanied by rheumatism as well as preceded by it; one sometimes giving place to the other. He finally summarizes as follows: 1. Fright, eye strain, debility, school pressure are potent causes of chorea. 2. Rheumatism, although absent in at least half of the cases of chorea, occurs

¹ Medical and Surgical Reporter, Children's Hospital, Boston, 1895.

² Keating's "Cyclopedia of Children's Diseases."

with greater frequency among the choreic than the non-choreic cases. 3. There is an intimate relationship between chorea and rheumatism. 4. The heart murmur so frequently found in chorea, with or without the history of rheumatism, is in considerable proportion of the cases due to endocarditis and leads to organic valvular disease.

The symptoms of chorea are so well known that it is hardly necessary to dwell on them. They are usually twitching of certain muscles or set of muscles; when it involves the whole limb it produces decided inco-ordination, and if the lower limbs are those mainly affected the child may not be able to walk without losing its balance or being thrown to the ground. I have seen several cases of chorea in adults. In two cases the muscles of the face and neck and one arm were involved, so that the face would be drawn violently to one side and the hand jerked violently.

B. C. Loveland¹ reports the case of a girl 12 years old whose movements were so violent that she could scarcely be kept on the bed, and whose special senses and speech were so affected that she was thought to be losing her mind. She had been taking full doses of arsenic without good result, but was cured in a short time by the use of quinine. Another case is reported in the same journal from H. C. Wood's clinic: Female, 12 years old. Movements so violent that she could hardly swallow food, and sleep prevented except under powerful opiates. She also was cured by the quinine treatment.

Besides pregnancy, chorea is sometimes complicated with multiple neuritis. An interesting case of this kind is reported by F. R. Fry, of St. Louis.² Female, aged 13; had two attacks before. One month after the chorea there was paresis of the lower limbs, which developed in a few days; there was tingling sensation instead of pain; knee-jerks absent. In six days she was unable to stand. Two months from first appearance examination showed reaction of degeneration in the muscles of the hands, feet, forearms, legs, and thighs; considerable atrophy in the same region, precisely symmetrical on both sides. In three months improvement in motility began and was continuous until complete recovery. Knee-jerk returned in four years.

In regard to the effect of electricity Gowers states that a "qualitative" change has been described in the mode of

¹ University Medical Magazine, Philadelphia.

² Transactions of the Medical Association of Missouri.

response to voltaism: instead of the contraction on closure of the circuit occurring at the negative pole with a weaker current than at the positive, it may occur as readily at the latter as the former—*i.e.*, instead of (1) K. C. C., (2) A. C. C., we have K. C. C.=A. C. C.

As to the pathology many theories are advanced. That by W. A. N. Dorland and Charles S. Potts¹ is interesting: "It appears to be a fundamental law that certain highly specialized cells of the nervous organism have relegated to them powers that are dominant, whose function is to dominate and regulate other cell groups not so highly specialized in the assignment of the complex workings of the body. Especially is this law exemplified in the familiar manifestations of the well-known cardio-inhibitory centre of the vagal nucleus and in the intensely interesting and intricate phenomena of thermotaxis. That group of cells to which has been allotted the power of inhibiting the motor function of the spinal cord is designated Setchenow's centre, which in the frog is placed in the optic lobes, and in man and the higher vertebrates is believed to be situated in the corpora quadrigemina or medulla oblongata. Whatever may be the precise location, it is undoubtedly true that stimulation of this portion of the brain substance will be followed by marked diminution in the reflex activity of the cord, thus demonstrating at once the dominating influence of the centre on the motor tracts of the cord beneath." They quote H. C. Wood as suggesting "that the direct cause of chorea lies in a disturbance or over-balancing of the equilibrium that normally exists between the motor power of the spinal cells and the inhibitory apparatus of the spinal cord, located in the so-called Setchenow's centre, the latter in choreics being involved in a paresis more or less marked. During inhibition the function of an organ is restrained; during paralysis it is abolished. The amount of disturbance will depend entirely upon the degree of loss of inhibition. Thus may be accounted for the varying grades of choreic manifestations, from the slightest case of so-called spinal irritation with the characteristic unrest and ebullition of nerve force and the exaggerated reflexes of the neurotic individual, to the grave cases of chorea major with the absolute loss of control of voluntary muscular effort and finally diminished or absent reflexes from exhaustion and depression of the entire motor area of the cord. Assuming, then, that it is due to loss of inhibitory power of Setchenow's centre,

¹ Journal of American Medical Association, 1893.

the treatment should be directed to restoring that function." They report fifteen cases where quinine was given to stimulate the inhibitory centre of the cord.

But to my mind Dana's theory is far more acceptable. He says that "the more recent studies of the pathology of chorea have led to the almost unanimous conclusion that the seat of the disease is primarily in the blood vessels and the blood, with secondary degenerative changes in the parenchyma, and that the cause is either some microbic or toxic substance, or both. The anatomical seat probably varies; the principal changes are in the brain and are sometimes chiefly in cortical and subcortical motor areas, and often in the meninges as well as cortex." He reports an interesting case in which a very careful bacteriological examination was made. He says the case started out as a typical case of Sydenham's chorea, and also shows the gradual evolution of a motor disorder not strictly like chorea, yet developing upon a typical attack of that disorder.

The finding at the autopsy was "chronic leptomeningitis of the convexity of the brain, hyaline bodies in the brain cortex, slight meningitis in upper part of the spinal cord, a slight meningo-encephalitis, and diplococci found in the proliferating tissue between the meninges and brain." In summing up this case Dana says that "this case shows that there is a close relationship between many of the chronic spasmodic disorders of irregular type and the chorea of Sydenham; (2) it confirms the theory that chorea is a vascular and humoral disease; (3) it gives weight to the belief held by many that there is, in some cases at least, a microbe that produces the disease; (4) it shows that in these cases the seat of the lesion is either meningeal or superficially cortical, so far as the brain is concerned, and that as regards the spinal cord the seat of the lesion is mainly in the meninges and blood vessels, where it apparently surrounds and irritates the roots of the nerves."

In my opinion no routine treatment can be followed, but it must be especially adapted to the particular case. I try to remove everything that might be an irritating cause. If the patient is at school I stop it; if a boy, and the prepuce is too long, I cut it off; if the child has worms I endeavor to get rid of them. I am in the habit, too, of giving the bromide of sodium with Fowler's solution of arsenic. If there is a chance of malaria being a factor in the case I give quinine. I have a case under my care at present. Some months ago he had well-marked chorea, affecting the facial muscles and hands; he also had a

very long prepuce, which I cut off, and put him on the bromide of sodium and arsenic. The treatment was very satisfactory, and in a month every symptom had disappeared and he went back to school. About two weeks ago, after he had taken no medicine for several months, the symptoms returned. This time he complained of much drowsiness, fever in the afternoons, and slight chilly sensations. I put him on the quinine, and he is doing well.

P. C. Knapp,¹ of Boston, reports eight cases treated by quinine and the enforcement of ordinary hygienic measures, such as rest, diet, etc., but no other medicine. From six to eighteen grains a day were given. All were improved after the first few days. In three or four cases arsenic was substituted.

D. R. Brower,² of Chicago, reports eighty-eight cases of Sydenham's chorea treated by statical electricity; only the crown with sharp points and the breeze were used for five minutes, the patient then told to sit quietly for ten minutes, every day for the first week, three times a week for the second, and twice a week afterward. Best hygienic measures were kept up, such as stopping school, resting an hour each day in a darkened room, etc. Arsenic was given to all and pushed to its limit in the worst cases; iron given when the hemoglobin was deficient; when sleep was insufficient, bromide of sodium was given, or chloralamid, etc. The immediate effect was often magical. Violent contortions would stop as soon as the patients had been on the stool long enough to be completely charged. Forty-five per cent of all the cases treated were relieved in about six weeks. Brower claims that the treatment by statical electricity is rational, according to the pathology of the disease; for, according to Dana and others, it is beyond all dispute that in chorea there is an intense hyperemia and dilatation of the cerebral blood vessels.

He goes on to say that electrization of the skin, as with static insulation and the use of the static breeze, produces contraction of the cerebral blood vessels and hence must be clearly indicated by the pathology of the disease; or, on the other hand, if the cause of this disease is an infection due to the Pionese germ, may we not assume, with what we already know upon the subject, that this form of electricity does exercise a germicidal power? Or if, as has been asserted by some, an autochthonous infection, may it not, by promoting elimina-

¹ Medical and Surgical Journal, 1895.

² North American Practitioner.

tion by the skin and kidneys, and by its power of regulating the circulation and stimulating nutrition in the body generally, cause a cessation in the production of these poisons and promote elimination of their toxins? In order to obtain these results electrical machines of high voltage are necessary. Four plates of twenty-six and twenty-eight inches in diameter will develop these results, and the eight-plate machine has demonstrated a therapeutic power very much greater.

I think every one will agree that the main stand-by in the treatment of chorea is arsenic. Of course harm can be done by this drug, and it should be administered very carefully. J. A. Adams¹ gives an interesting case of neuritis supervening as the result of large doses of arsenic. The chorea was cured, but the patient developed a peripheral neuritis, which started in the legs and finally involved all the limbs, so that she could not even turn over in bed or feed herself. In about three weeks she began to improve. She showed no sign of arsenical poisoning before the neuritis, although the case was closely watched in a hospital. The administration of arsenic by hypodermatic method has been used with good effect by some. A few days ago a man 46 years of age came under my observation, speech much affected, staccato voice, tongue hesitatingly protruded, twitching of hands and muscles of face, voice explosive, complained of rheumatic pains. The heart was enlarged, but no bruit could be detected.

1134 CONNECTICUT AVENUE.

MANUAL RECTIFICATION OF FAULTY HEAD POSITIONS.¹

BY

HENRY D. FRY, M.D.,

Professor of Obstetrics, Medical Department of Georgetown University; Physician in charge of Obstetric Department, Garfield Hospital; Obstetrician to Columbia Lying-in Hospital, etc.,
Washington, D. C.

PAUSING for a moment during these terminal years of a century so nearly run its course, I ask you to take a retrospective view of the field traversed. Contrast our present position with

¹ London Lancet, 1894.

² Read before the Washington Obstetrical and Gynecological Society, June 19th, 1896.

that of the noble band of workers in the early part of the century, and we can obtain some idea of the vast strides of the obstetric art toward perfection.

Standing out like mountain peaks amid surrounding hills we see striking discoveries in nearly every branch of the science. The application of anesthesia to relieve the sufferings of childbirth and to bring within reach the successful termination of operative procedures that would be impossible without its aid, the discovery of the nature of septic infection and its prevention by the application of germicidal agents, tower above all others.

The management of pregnant woman, the prevention and treatment of her diseases, the study of the pelvis and adaptation of the head to the pelvic diameters, and clearer ideas regarding the nature and treatment of eclampsia, placenta previa, and ectopic gestation, add to the triumph. The value of the application of the X-rays to our branch of medicine is still unknown, but with advancing improvement of shadowgraphy we can hope for much assistance in the diagnosis of natural and ectopic pregnancies and of fetal positions.

Still more brilliant results greet our view of the field of obstetric surgery. The successful results of Cesarean section and symphyseotomy have saved numbers of fetal and maternal lives and removed one of the greatest horrors of obstetric practice—viz., that of craniotomy upon the living fetus.

Well may we congratulate ourselves that our lot has been cast at a time of such abundant harvest.

Acknowledging all these advantages, it is my duty, however, to point out one important part of our work in which I think we suffer by comparison with our predecessors, particularly those who were actively engaged in practice during the first half of the century. Dependent as they were for success upon the powers of observation, unaided by the modern instruments of precision, they brought to bear a close application and study of the laws governing the mechanism of labor, and difficult labors due to malpositions of the fetal head were generally recognized and corrected manually. The value of this line of treatment was fully appreciated, and much more attention was given to the subject by the text books used in those days.

Contrast with this the modern indifference on the subject. The majority of physicians at the present time make no pretence of ascertaining the position of the child or of recognizing the importance of so doing. They are fully satisfied to make a

diagnosis of the presentation, and if either end of the fetal ovoid presents they complacently await the termination of labor, limiting their observations to the progress of dilatation and descent of the presenting part. If unusual delay occurs the forceps is the remedy. Valuable and life-saving as this instrument is, familiarity with its use has done much to engender carelessness regarding a study of the mechanism of labor. As confidence in the employment of the one increases, the knowledge of the other decreases. The diagnosis of faulty positions of the head and the rectification of the same manually would often save hours of suffering and render resort to the forceps unnecessary. The truth of this statement was made apparent to me by the following circumstance: Being called to attend a primipara whom I had been treating for advanced mitral disease during the latter months of gestation, my uneasiness concerning the outcome of her labor was not a little increased by finding the child presented R. O. P. The vision of a prolonged second stage with strong expulsive pains stared me in the face. I determined to attempt manual rotation of the occiput forward, and, as usual with first labors, the head had already descended well into the pelvic cavity. Dilatation being promptly completed, the patient was brought under ether, the hand inserted during the absence of uterine action, the head grasped, and, acting with the pain, the occiput was quickly and easily brought under the symphysis. A little while later I had the satisfaction of seeing the child safely delivered.

I have no doubt whatever but that Nature would have rotated this occiput unaided, but I am sure that I saved valuable time which otherwise might have resulted seriously.

On another occasion I responded at 6 A.M. to a call in a distant part of the city, and arriving at the house found two colleagues in attendance. I was informed that the patient, who had given birth before to children in easy labors, now resisted all efforts to effect delivery. The attending physician asked for counsel after labor had progressed for some time. Then he and the consultant made unsuccessful attempts to extract the head with forceps, and, the latter being a very heavy and powerful man, I am sure that, so far as the exercise of physical force was concerned, nothing was left to be desired. Having obtained this information, I examined the woman and found the child's head near the outlet, the face presenting and the chin posteriorly and to the right. Ether was administered, the woman placed across the bed, and inserting my hand into the vagina I grasped

the head. With the next pain I succeeded without difficulty in rotating the chin anteriorly, applied the forceps, and with very little traction delivered a live baby.

For the historical interest I desire to bring fully before your consideration the views of some of the older obstetricians on this subject.

I begin with Smellie, who deserves priority in every way. He was doubtless the first to discover the possibility of rotating occipito-posterior positions by artificial means, although he had practised changing such cases into face presentations. This occurred in 1745 and is reported in his list of cases (No. 258). He was called in consultation by a midwife to see a woman who had been all night in strong labor. He examined and found a right occipito-posterior position, and, as this may be considered a memorable case, I quote his description of the operation. He says: "I introduced the forceps along the ears, holding the handles, when fixed, toward the vertex, which was to the right side of the os coccygis. Then I began to pull from side to side; by which means the head advanced a little, but not so much as to allow the forehead to turn out below the pubes. In repeating these efforts the forceps slipped off three times; though I did not observe, till afterward, that one of the blades, by giving way, was the occasion of their slipping off the head. As I found I could not deliver the head by pulling either downward to bring out the forehead, or upward because the head would not yield that way on account of the chin's being pressed against the breast, neither did I choose to try the blunt hook because of the bad consequences attending that method. I was also averse and loath to destroy the child by opening the head. While I paused a little, considering what method I should take, I luckily thought of trying to raise the head with the forceps and turn the forehead to the left side of the brim of the pelvis where it was widest—an expedient which I immediately executed, with greater ease than I expected. I then brought down the vertex to the right ischium, turned it below the pubes, and the forehead into the hollow of the sacrum, and safely delivered the head by pulling it up from the perineum and over the pubes. This method succeeding so well gave me great joy and was the first hint in consequence of which I deviated from the common method of pulling forcibly along and fixing the forceps at random on the head. My eyes were now opened to a new field of improvement on the method of

using the forceps in this position, as well as in all others that happen when the head presents."

This case points to another feature which I have already mentioned—viz., that, as one grows in confidence in using forceps, less attention is given to manual rectification. Smellie could have executed the same steps with his hand with more readiness and safety to his patient. Until 1733 Smellie seems to have been ignorant of the use of the forceps, and until the next four years he used it to a limited extent only. From this period he seems to have made it the method of election, but fortunately he used the same skill in ascertaining the position of the child and in following the proper mechanism of delivery.

The importance of this subject is so well demonstrated by other cases in the practice of this skilful obstetrician that some of them will be mentioned. Cases 124, 125, and 130 were difficult labors with transverse positions of the head.

Case 124 was a primipara who had long been in labor when he was called. The sagittal suture was in the transverse diameter, the occiput on the right ischium, and the left ear at the os pubis. During a pain he introduced his fingers toward the child's left temple and turned the forehead backward to the sacrum. The sides of the head turning to the sides of the pelvis, the vertex immediately came under the pubes and the woman was delivered.

Case 125. Same malposition; primipara. Midwife and a male practitioner were in attendance, and woman had been a long time in labor. Unsuccessful attempts had been made to deliver the head with the fillet, turning by the feet was repeatedly tried in vain, and they had concluded that craniotomy was demanded. Smellie "moved the forehead backward toward the os sacrum" and the vertex soon came to the front, and a very large child was born which subsequently died from the injury caused by the fillet. The scalp had been torn from the occiput.

Case 130 was a transverse position of the head with the vertex to the left; head high and not well flexed, as Smellie felt the anterior fontanelle. He flexed the head as follows: "She was therefore turned on her back, her head and shoulders being raised a little with pillows, and her knees held up toward her belly, as she lay across the bed; for her pains were stronger while she continued in this position. In the beginning of a pain I gently introduced my right hand into the vagina and raised up the forehead and face; and the pain increasing, I

withdrew my hand and found the vertex sink down to the lower part of the left ischium. In a few pains the forehead turned backward, the hindhead came out below the pubis, the os externum was gradually opened and the child safely delivered."

Case 128 was a right occipito-posterior position. The woman, who had given birth to other children with easy labors, had this time been suffering nearly two days when Smellie saw her. He raised the head a little when the pain was passing off, and moved the forehead backward to the left side of the sacrum. At the next pain he withdrew his hand, which was followed by the child's head, and in a short time the woman was delivered.

Case 260 was a similar faulty position, which he corrected in the same manner, except using the forceps instead of the hand.

Cases 250, 259, and 270 were also right occipito-posterior positions, but he delivered by converting them into face presentations with the chin to the left and anteriorly. This is the more remarkable as the head had descended into the pelvic cavity, and by changing from flexion to extension the long occipito-mental diameter of the head was thrown across the pelvis. Evidently this could be accomplished successfully only in cases having relatively small heads or large pelves.

His method of operating was as follows: The blades of the forceps being placed at the sides of the child's head, instead of making a traction in the line of outlet he pulled downward so as to produce extension, drawing the forehead and face from behind the symphysis until the chin emerged. The handles were then lifted upward and the head born by flexion.

I will conclude with this author by making mention that he also gives cases (132 and 137) of face presentations which he changed into vertex by pushing up the forehead and drawing down the occiput.

John Burns (1810) says of occipito-posterior positions: "If it be discovered early it is certainly proper to rupture the membranes and turn the vertex round, a proceeding which is easily accomplished and prevents much pain and fretfulness." Quoting Dr. Clark, he says "that in thirteen out of fourteen cases he succeeded in turning around the vertex by introducing either one or two fingers between the side of the head near the coronal suture and the symphysis of the pubis, and pressing steadily, during a pain, against the parietal bone." Of the advantage of this practice Burns says he can speak from his own experience.

Denman (1821) seems to have had little or no experience with manual rectification. He advises leaving occipito-posterior cases to Nature, although it will be long and painful. Showing his ignorance of the treatment, he mentions: "*It is said* that by pressure with the finger the face may be gradually inclined to the sacrum."

Dewees (1833) clearly describes delivery with the occiput posteriorly, and states that the character of the labor is difficult and prolonged and the woman's sufferings are necessarily increased. He says it should be changed into occipito-anterior when Nature does not do it for us. The operation, he claims, is not of the slightest difficulty and does not cause any pain provided it is done under favorable conditions. These are: full dilatation, unruptured membranes, the head at the outlet, and labor active. His method is to press the point of the forefinger against the side of the head and direct it to the left sacro-iliac synchondrosis. If the posterior fontanelle does not rotate to the right acetabulum, "the attempt must be repeated again and again until it succeeds, which it will almost constantly do." He says: "I consider a perfect knowledge of this presentation (for it is far from being infrequent) a matter of high moment to the practitioner, and particularly so in this country, where the study of midwifery engages so much of the attention of the medical student. . . . So positive an advantage does a knowledge of this presentation and the mode of reducing it give one practitioner over the one who may be ignorant of it, that it enables the first to terminate a labor in as many minutes as the other might be hours."

So decidedly useful is this knowledge, he holds a man incompetent "to practise midwifery in its best manner who cannot detect and change this malposition of the head."

"I have always done this since I first became sensible of its advantages—a period of more than thirty years."

He criticises Denman for his advice that "the practitioner should on no account interfere, provided the labor be natural," and thinks it the more inexcusable since the English were in possession of the works of Baudelocque, translated by Heath in 1790, in which the subject was so scientifically and successfully treated.

Dewees gives rules also for rotating the occiput at the superior strait. He directs to introduce the hand into the vagina, pass the fingers into the dilated cervix, and grasp the head with the fingers on one side and the thumb on the other. The head

must then be raised so as to disengage it, and the vertex turned to one of the acetabula. Dewees then gives full and excellent directions for treating face presentations. He says it is essential to success to push up the whole head before bringing down the vertex, even when it rests at the superior strait, and the forehead must be pressed up at the same time that the occiput is brought down.

The uterus must be dilated sufficiently to pass the hand; the head must not have entirely passed the strait, and the waters must have recently been evacuated. The choice of which hand to employ for the different positions is carefully made. "In the first presentation of the face" (chin to the right) "we pass the right hand into the uterus in such a manner as shall put the back of the fingers to the posterior part of the pelvis or before the left sacro-iliac symphysis, and place them on the side of the head, while the thumb is pressed against the opposite side; the head is then to be firmly grasped and raised to the entrance of the superior strait. When the head is thus poised the extremities of the fingers are to be carried over the vertex while the thumb is moved to the centre of the upper part of the forehead; the fingers are then made to draw the vertex downward while the thumb tends, by its pressure, to carry the face upward, thus executing a compound action upon the head."

The writings of this author justly place him in the very front rank, and none exceed him in the full description of the subject under consideration. So complete are his rules for the manual correction of malpositions of the head that they would do credit to a modern work on obstetrics.

Ramsbotham (1843) recommends in occipito-posterior positions, when the head is high and engagement slow, to grasp the head, in absence of uterine action, between the fingers and thumb, and turn the face posteriorly. Brow presentations, he claims, can be frequently corrected, when discovered early, by a simple and easy method. It only requires steady pressure to be made upon the brow, with the end of the finger, during the pain, so as to arrest the forehead and let the vertex descend. His treatment of face presentations does not compare with that of the writers already mentioned.

Robert Lee (1844) agrees with Denman that, as a rule, no interference should be used in occipito-posterior positions, and he quotes Dr. Merriman that although the head may be longer in passing, it will be at length excluded. He refers to Smellie's

custom of turning the forehead around to the sacrum, but believes it is better practice to leave these cases to the natural efforts. Surprise is expressed that Dr. John Clark was not acquainted with Smellie's method, for he says "he evidently thought he proposed a novel practice when he recommended to push the forehead round toward the sacrum."

Warrington (1854) gives very complete rules for changing various malpositions of the head by manual interference. He occupies about ten pages considering the subject, and gives full directions how to assist flexion, how to effect rotation and convert one position into another, and change from vertex to face presentation and *vice versa*.

I will conclude reference to the older authors by giving the views of Bedford (1867). He devotes considerable space to the consideration of manual delivery, and takes up the subject under the following headings: manual delivery when either lateral region of the head presents; when Nature is unable to accomplish flexion; in occipito-anterior position when rotation is not effected; and, finally, in occipito-posterior when rotation does not occur. His description of the complications mentioned is excellent and advice for rectification very satisfactory.

I have gone so fully into the views of the writers quoted that nothing remains to be said about the importance of the subject. However, modern obstetric practice has so altered the possibilities of the case that some mention may be made of the different conditions which now exist to our great advantage.

First, in regard to anesthesia. If we stop to reflect on the difficulties that the older accoucheurs encountered we wonder how it was possible for them to accomplish so much. To insert the hand into the vagina of a conscious, struggling woman, rendered desperate by the pains of labor, to grasp the head and correct malpositions when the uterus resented interference by contracting more firmly, challenges our admiration.

It is impossible to realize our great advantage, so accustomed are we now to do all this manipulation with a relaxed, unconscious patient fully under control and uterine action held in abeyance. More striking still is the contrast when our efforts require us to raise the presenting part above the pelvic brim.

Secondly, we must not lose sight of our greater ability to make a diagnosis of the presentation and position of the fetus. The attention which has more recently been given to external examinations by palpation and auscultation places us in a position far in advance of those times. Also, the use of the anes-

thetic permits us to solve all doubts by enabling the examining hand to thoroughly pass over the presenting part, examining not only its relations to the pelvis, but permitting accurate knowledge to be obtained regarding the conformation of the latter and the relative proportions of the passage and passenger.

Finally, the discovery of the infectious nature of septic fever removes one of the great dangers of the operation. By the preliminary preparation of the birth canal and the introduction of the aseptic hand within the vagina and uterus, the procedure is safe compared to the older methods of operating.

With all these advantages so clearly before us we should not hesitate to popularize again this method, the value of which was so highly appreciated by our predecessors. Let us recognize the fact that tardy labors can be terminated speedily and successfully by other means than by forceps. I appreciate this instrument as highly as any one, but we must have a place for it, and one for manual rectification also. The forceps supplants the lessened force of labor, but does not correct its faulty mechanism. Especially is this true when the blades of this instrument are applied, as is so commonly done, to the sides of the pelvis, irrespective of the position of the child's head. In the majority of the cases the head is grasped with one blade over the side of the occiput and the other over the eye. Neither flexion, extension, nor rotation is assisted under these circumstances; on the contrary, they are prevented, and the head injuriously compressed and extracted without complete rotation, unless it be at the outlet, and the final movement of extension alone remains to give it birth. More particularly is this true of the Hodge and French patterns of forceps, which exert strong compressive power and are intended only to be applied to the sides of the child's head. In conclusion I will briefly mention the procedures necessary to correct manually the principal faulty positions of the head that one may have occasion to meet.

Certain steps are necessary alike to all. In all cases, with possibly few exceptions, complete anesthesia should be induced. The advantages of this are clear to all and have been sufficiently mentioned.

The patient should be brought across the bed, with the buttocks projecting well over the edge and the limbs supported, with the legs and thighs flexed. The mattress, bed, and floor should be protected by rubber sheeting and a foot tub so placed as to catch all fluids. The bladder and rectum are emptied and

the external parts cleansed first with soap and sterilized water. The external parts are then bathed with bichloride solution 1:2000, and the vagina douched with a solution of creolin or lysol, 2 per cent. The hands are cleansed, and the one to be introduced needs no lubricant except the creolin or lysol solution. The other hand steadies the fundus. Great advantage will sometimes be derived by placing the patient in Trendelenburg's or the knee-chest position instead of the lithotomy. Particularly is this the case when difficulty is met with in pushing up the presenting head above the pelvic brim. Trendelenburg's position can be managed by placing an inverted chair across the bed in such manner that the inclined plane formed by its back is directed toward the middle of the bed.

Let us give our attention first to the correction of occipito-posterior positions.

These will be subdivided into classes in which the head is at the superior strait, in the pelvic cavity, and at the outlet. It must be recognized that when the head is presented at the inlet with the occiput behind, it enters the pelvic canal with greater difficulty because the end of the biparietal diameter impinges on the sacral promontory; also, the labor pains are less regular and effective than in occipito-anterior positions. However, with a normal head in a normal pelvis little delay should occur. In primiparæ the increased intra-abdominal pressure, as a rule, forces the head well down into the excavation before labor sets in. When, therefore, we find the opposite condition existing in either of these cases, we should immediately suspect some disproportion between the head and pelvis, and must first satisfy ourselves that the child can be born before correcting the faulty position.

In order to accomplish this purpose we should first try the effect of postural treatment advocated by Reynolds: "The patient should be placed in the knee-chest position; the head then tends to leave the brim under the influence of gravity; and as the presence of the spinal column makes the dorsal half of the child the heavier, the force of gravity promotes rotation of the fetus, as a whole, about its long axis into an anterior position.

"This treatment, when properly carried out and persisted in for a sufficient length of time, in appropriate cases, rarely fails; but it is essential that the position assumed should be the true genupectoral. . . . The patient should be encouraged to retain this as long as her strength permits, or until vaginal exami-

nation without alteration of her position demonstrates the fact that rotation has occurred. She should then be placed in the latero-prone position, upon the side opposite to that to which the occiput is directed, . . . and this attitude should be retained until engagement in the new position has been firmly established."

If this fails we must resort to rotation with the hand. In R. O. P., which is most frequent, the right hand is carried into the vagina with the palmar surface directed to the right. The fingers are carried to the left side of the pelvis and pressure brought to bear upon the forehead until the head is raised up and flexed. Then turning the hand midway into supination, the head is grasped laterally with the fingers applied behind and the thumb in front, and, continuing the movement to extreme supination, the occiput is rotated anteriorly and the face posteriorly.

Malcolm McLean has called attention that efforts at rotation may be defeated by the coiling of the funis around the neck. This may be overcome by making rotation of the head and body of the child in the opposite direction, which at the same time unwinds the cord.

Rotating the child in this way upon its long axis is described by Grandin and Jarman as indicated in these cases of occipito-posterior positions while the head is movable above the brim. The head should be gently pushed up, if engaged, and the hand grasps the fetus and rotates it until the occiput is anterior.

If all efforts to rotate the occiput are defeated, which must be extremely rare, several expedients yet remain. One is to push up the forehead or draw down the occiput and let the head come down well flexed, and trust to rotating the occiput when it reaches the perineum. Another is to raise the head and make extension, thus converting the unfavorable vertex presentation into a favorable face with the chin anterior. As a final resort there remains version, combined or podalic, and the delivery of the child head last.

When the head has descended into the pelvic cavity an expectant policy is best if the labor pains are good and the head is well flexed. Rotation is easier later when the presenting part reaches the resistance of the pelvic floor. Interference may be limited at first to securing flexion by drawing down the occiput with the hand or by pushing up the frontal end of the pole, and at the same time inaugurating a movement of rotation by pressing the forehead backward toward the left sacro-iliac joint. If

desirable it may yet be within our means to press up the head above the brim and rotate the occiput forward, as already described. It is in such cases that valuable aid is rendered by deep anesthesia and Trendelenburg's position.

Baudelocque's method may also be employed to correct the malposition. The left hand is passed over and behind the occiput, and, while drawing it downward and forward, the right hand is employed externally to raise and push the child's chest upward and backward. It is proper to direct attention here to the expedient resorted to by Smellie of converting these cases into favorable face presentations by applying the forceps and making traction downward. The extension of the head brings the forehead and face down from behind the symphysis, the chin escapes under the pubes, and, raising the handles of the instrument, the head is delivered by flexion. The objection to this has been mentioned, but it may be kept in mind as being sometimes available with or without symphyseotomy.

When the occiput has reached the perineum with good flexion, secured artificially if needed, rotation will usually require little or no assistance, provided the pains are strong. Otherwise the tips of one or two fingers may promote rotation by pressure backward, during successive pains, upon the side of the forehead. Or we can resort at once to the more powerful assistance of the hand. The head is grasped with the fingers of the right hand posteriorly and the thumb anteriorly, and during uterine action the occiput is drawn downward and twisted around to the right acetabulum. Another method is to seize the head with the fingers passed opposite the sacro-iliac synchondrosis, and, extending the thumb, let it exert pressure backward upon the other end of the pole and thus subject the head to a double rotary force.

Transverse and brow presentations may be dismissed with the general direction to push up the head, flex it, and turn the occiput forward. In the management of face presentations each case must be treated according to its peculiarities. Ment-to-anterior positions, with strong pains, good extension, and especially in multiparæ, may be left to Nature. Every care should be exercised to preserve the membranes intact until dilatation is completed sufficiently to admit the easy introduction of the hand.

When these presentations are detected at the inlet the general rule to follow is to introduce the aseptic hand, grasp the head, and, after pushing it up, to disengage it, flex, and turn the

occiput to the front. In mento-anterior varieties these steps necessitate changing it first into a vertex with the occiput behind, and then the rotation of that part to the front.

Deweese's method is to subject the head to a double force by drawing down the occiput and at the same time pushing up the forehead. He claims the choice of the hand is a matter of the first importance, always using the hand which corresponds by name to the side where the chin is situated.

For instance, in right mento positions the right hand is employed. It is first applied with the fingers posteriorly and thumb anteriorly; the head is then grasped firmly and raised to the brim. Thus poised the fingers are carried over the vertex, while the thumb is moved to the centre of the upper part of the forehead, and at the same time that the occiput is drawn down the forehead is pushed up.

When the head has passed down into the cavity it may be pushed back to the inlet, aided by posture, as described, and converted into the vertex. If this should be impossible, efforts should be directed to secure extension by drawing down the chin or pushing up the forehead. When the face reaches the pelvic outlet the forceps may be used to terminate the labor, provided the chin is to the front. If the chin be situated behind, the fingers of the right hand should be passed behind the side of the face and pressure made forward during each pain, or, grasping it firmly between the fingers and thumb, it may be drawn downward and forward until the chin turns to the front.

In a few cases the face may be changed to vertex while in the cavity of the pelvis, if the pelvic diameters are roomy enough to permit the occipito-mental diameter of the head to be passed. In desperate cases symphyseotomy may be justified to allow this manoeuvre. It has been performed under these circumstances but once, so far as I know, and as the case is unique I will quote Dr. Lusk's report. It also demonstrates the injury of attempting to deliver these cases contrary to the laws of the mechanism of face labor:

"The only case in which I have performed symphyseotomy was one of face presentation. The medical attendants had applied forceps. The head was transverse. Before they had finished with the case they had broken the child's jaw, had cut deep gashes into the scalp, had torn the lower segment of the uterus, had cut with the forceps deeply into the vaginal tissues, and sent the patient to the Maternity Hospital in a dying

condition. Now, there was not any real expectation of rescuing the woman by performing symphyseotomy, yet, as I could not deliver with the forceps and version was out of the question, I decided to try that as the least serious procedure. The patient's temperature was 103° F. The interesting point in the case was the fact that after the symphysis was divided the difficulty of flexing the head entirely disappeared. The forceps was then applied and the woman was delivered successfully. Of course performing symphyseotomy does not cure a dying woman, and death took place within twenty-four hours after the operation, but the case carried with it a certain amount of instruction."

Conclusions.—Occipito-posterior positions with slow engagement require rectification. First try postural treatment.

If unsuccessful, introduce the aseptic hand (cervix dilated or dilatable), raise the head, flex and turn the occiput in front. In some cases it is well to grasp the fetus and perform internal rotation. To convert into a face presentation with mento-anterior is another but less desirable substitution.

Brow and transverse presentations of the vertex at the pelvic brim are treated on the same principle. Face presentations at the brim must be changed by raising the head, pushing up the forehead, and drawing down the occiput. If a mento-anterior position, the head must be rotated after changing into a vertex presentation.

Occipito-posterior and face presentations within the pelvis may often be treated in the same manner. By aid of anesthesia and posture the head may be raised sufficiently high to disengage it.

In favorable cases of occipito-posterior and face presentations efforts may be limited to secure extreme flexion in one case and extension in the other, until descent is completed. Rotation of the occiput or chin forward may then be accomplished.

In some cases with small heads or large pelves it is possible to change occipito-posterior into mento-anterior, and mento-posterior into occipito-anterior positions, when the head is in the pelvic cavity or at the outlet.

It goes without saying that efforts to raise, flex, or rotate the head at the superior strait must be made during the absence of uterine action, while manipulations to correct malpositions in the cavity or at the outlet should be performed during pains.

SUPRAPUBIC OPERATIONS FOR FIBROID,

WITH REPORT OF CASES.

BY

D. D. QUILLIAN, M.D.,

Member American Medical Association and Georgia State Medical Association,
Athens, Ga.

(With one illustration.)

THE summer of 1895 finding me with several cases of uterine fibroids, for the most part poor people not possessing sufficient means to enter a private hospital for treatment or to go to a large city to a charity hospital, I was confronted with this dilemma: should I use palliative measures, or should I venture to do what most operators advise against, operate at their homes? I determined upon the latter course, believing that if one has a clean patient, clean hands, and clean instruments the wound can be kept as aseptic in a private house, be the surroundings ever so filthy, as is possible in a hospital or sanitarium.

The patient should be prepared by requiring her to bathe the whole body thoroughly with soap and water daily for three or four days prior to operating. She should take no solid food for two days before, and the bowels should be thoroughly emptied by calomel and salts. Before beginning the operation the pubes should be shaved, the abdomen and vagina thoroughly washed with antiseptic solutions, the instruments boiled, and the surgeon's hands and nails thoroughly cleaned. To insure thorough asepsis I use seven antiseptic solutions, finishing with hot boiled water. The field of operation is surrounded by towels previously boiled. An incision is then made in the median line, first through the skin, then through the muscular layer or linea alba, and when the peritoneum is reached it is raised by tissue forceps and opened. When this has been done the incision is enlarged with scissors as occasion may require. Adhesions, if any are found, are carefully broken up, all bleeding points being ligated with aseptic silk. The tumor is then removed as indications require: if attached by a pedicle it is ligated and cut off; if intramural the cervix is amputated,

leaving flaps which are united by sutures. If there is much oozing from adhesions torn loose, the abdominal cavity is flushed thoroughly with sterilized water and all accumulations removed; the peritoneum is then closed with catgut, the muscular layer with silver wire, and the skin with buried silk-worm gut; the wound is dusted with iodoform, the usual antiseptic dressings applied, and the patient put to bed. She is allowed nothing but hot water for twelve to twenty-four hours, after which she is given liquid nourishment, preferably buttermilk. Such, in brief, was the technique in the following cases. These were not selected, but apparently very unfavorable, submitting to operation in a spirit of desperation, as without it death was inevitable in a short time. The operations were done by Dr. I. H. Goss and myself, assisted by Drs. Conway and Holliday.

CASE I.—Lou T., mulatto, 35 years old; had one child eighteen years ago. She has had a tumor four years, which confined her to bed for the past six weeks. She suffers greatly with pain, necessitating constant use of opium. Made an incision in the median line and found innumerable adhesions, which were with difficulty broken up, and an intramural fibroid weighing ten pounds. Removed tumor with ovary and tube. The right ovary was absent, and only a rudimentary tube was present on that side. Amputated the cervix and closed the abdomen as described above. Time of operation, two hours, the usual methods being used to lessen shock. Patient's recovery was uninterrupted except for two cellular abscesses caused by infection during the transfusion of saline solutions. Two months after operation the patient opened a restaurant and has since been engaged in this business.

CASE II.—Milnie U., age 32; mulatto; married, no children; has had a tumor five or six years. Incision in the median line. Found a multilocular fibroid weighing twelve pounds. Numerous adhesions were found and broken up; ovaries and tubes removed with tumor, the cervix amputated, and the abdomen closed as above. Time of operation, one hour and fifty minutes. Recovery was uninterrupted, except for shock, which was extreme, increased, no doubt, by difficulty in breaking up adhesions, which prolonged the operation. Patient has been engaged in her usual occupation—cooking—since recovery.

CASE III.—Q. A. W., mulatto; mother of one child 17 years old; has led a dissipated life for the past ten years. Is confined to bed, for the most part on account of weak and ema-

ciated condition and the enormous weight of tumor. Menstrual flow very irregular for the past year; a good deal of swelling in the lower limbs for one to two weeks before the menses come on; very little pain after the flow begins. Has had several attacks of severe pain, followed by extreme tenderness just below the umbilicus. The tumor in this case was very large and the abdominal distension was enormous. The accompanying cut shows the patient just before the operation. An incision was made in the median line, extending from just



Patient before operation.

above the symphysis to three and a half inches above the umbilicus, the length of the incision being about eighteen inches. Found numerous adhesions, and the omentum adherent to the entire front of the tumor, and so much stretched by the growth that it was torn into shreds, thus accounting for the severe attacks of pain and tenderness to which the patient had been subject. The shreds were held by enormously enlarged omental veins, which were considerably larger than a lead pencil. The adhesions were broken up, the omental veins ligated, and the entire omental mass, weighing about three

pounds and covering the tumor, was cut off. The tumor, which weighed thirty-two pounds, was attached to the right anterior surface of the body of the uterus by a pedicle about two inches in diameter. The pedicle was ligated and divided. The appendages, being healthy, were not disturbed, except in freeing the tumor from adhesions to the broad ligaments. The abdomen was thoroughly flushed with water previously boiled, and the wound closed as described above. Time of operation, one hour and fifty minutes. The patient had very little shock, the temperature not going above 100.5° F., and being normal after the second day. Her recovery was perfect. Catheterization was not required, and the bowels moved regularly without purgatives. No medicine was given after the operation except a simple cough mixture, she having a slight bronchial cough following the administration of ether. She was walking about the room in four weeks; gained flesh rapidly; her menses became regular, and she has since been in perfect health and at her usual occupation, washing and ironing.

In none of these cases was the drainage tube used, notwithstanding the size of the tumors and the numerous adhesions encountered, nor was one drop of pus formed in any of them. Union by first intention was perfect in each case.

These facts seem to prove:

1. That pus indicates faulty technique; that in some way the operator has contaminated the patient. A stitch-hole abscess is inexcusable, and is impossible if the technique is correct and the Marcy buried sutures are used.

2. That the drainage tube is seldom, if ever, needed in abdominal operations if the work is done in a thoroughly aseptic manner.

3. That operations of any kind can be performed in private houses, even with filthy surroundings—as these cases were all operated upon in dirty negro cabins—with as much impunity as in the cleanest hospital in the land, provided proper antiseptic measures are employed.

SOME CLINICAL JOTTINGS ON FIVE HUNDRED CASES OF
LABOR.¹

BY

EUGENE R. CORSON, B.S., M.D.,

Member of the Medical Association of Georgia, of the American Medical Association,
and Fellow of the American Electro-Therapeutic Association,
Savannah, Georgia.

The Forceps Cases.—The forceps was used 133 times—90 whites and 43 colored. There were 16 cases of eclampsia, 12 cases of occiput posterior, 2 cases of placenta previa, 2 craniotomies after forceps failed, 7 versions after forceps failed, 1 for prolapsed cord, 2 for perceptible conjugate contraction, 2 for obstruction from thickened cervix, 2 where the child was dead, 1 for pendulous abdomen, 3 for a justo-minor pelvis, 1 for beginning hydrocephalus, 2 neglected cases with uterine inertia, 2 for threatened convulsions, 1 to save the child where the five previous ones were born dead (it lived but twenty-four hours), 1 where the vagina was blocked by a fibroid, 1 neglected case after five days of labor, and 1 for puerperal sepsis in neglected labor. This left 77 cases which were otherwise normal. Of these there were 9 very difficult extractions where the forceps seemed absolutely necessary. This leaves 68 comparatively easy cases where the forceps was used to shorten the labor and relieve the woman; it was used simply *in loco doloris*. In most of them the cervix was well dilated, the head low down, and the labor at least two hours in the second stage. In many cases the application and extraction were the simplest possible—hardly more than giving an enema—and yet I felt rewarded if I but relieved the patient of a half-hour's suffering.

In the 90 cases among the whites there was 1 death on the tenth day from puerperal thrombosis and embolism. The forceps had been applied to a dead child, the patient having high septic fever from neglect and dirt. The uterus was washed out, and all fever controlled by the fifth day, and the patient discharged. She got up on the tenth day and suddenly fell dead.

¹ Continued from p. 196, February number.

There were 9 deaths among the 43 colored—6 from eclampsia, 2 in neglected cases with uterine inertia and collapse, and 1 from placenta previa (neglected).

There were 30 deaths among the children—20 colored and 10 whites.

Among the whites there was 1 death on the sixth day from placenta previa ; 1 from prolapsed cord, dying on the third day following difficult extraction ; 1 death before delivery in threatened convulsions ; 1 death in twenty-four hours, 5 previous children born dead ; 1 following version in contracted conjugate, forceps having failed ; 1 following version in justo-minor pelvis, forceps having failed ; 1 in sepsis from neglect ; and 1 in justo-minor pelvis with large child.

Among the colored the 20 deaths are thus accounted for : 2 craniotomies, the forceps having failed ; 7 of eclampsia ; 4 dead before delivery ; 1 placenta previa ; 3 versions, forceps having failed ; 2 occiput posterior (one neglected and in collapse) ; and 1 neglected case after five days' labor.

My chief reliance has been the Elliott forceps, a quite perfect instrument, and the Thomas short forceps in the simplest cases. The lock in this instrument is poor, and I have abandoned it, using the Elliott long forceps. The Tarnier forceps has helped me out in a few cases where Elliott's failed me, but the Tarnier model should give way to Lusk's modification. I have several times used the traction rods on my Elliott forceps with ease and satisfaction.

I always apply the forceps as far as possible under antiseptic conditions, and seek to apply them to the sides of the head. If I find any difficulty in so applying them I place them where they most easily slip in and lock, satisfied with the advice of such an authority as Barnes, who, in his "Obstetrical Operations," writes: "It is a habit of mine to examine the head in every case after delivery. I have thus many times seen the stamp of the fenestræ on the brow and side of the occiput. This is as clear to read as the impression of a seal on wax. It says, unmistakably, that the blades found their way into the sides of the pelvis, with at most a slight deviation toward an oblique diameter."¹

This, too, has been my experience, "that so often sets at naught the refinements of theory, and clears up for herself a

¹ "Lectures on Obstetric Operations, including the Treatment of Hemorrhage, and forming a Guide to the Management of Difficult Labor," by Robert Barnes, M.D., F.R.C.P., New York, 1876, p. 45.

FORCEPS CASES.

No.	Race	Age.	Para.	Time.	Presenta- tion and position.	Duration of labor.		
						First stage.	Second stage.	Third stage.
1	W.	38	I.	Term.	Vertex.	No record.....	No record.....	No record.....
2	"	"	II.	"	"	" " " " " "	" " " " " "	" " " " " "
3	"	"	I.	"	"	" " " " " "	" " " " " "	" " " " " "
4	Col.	24	I.	"	O. Post.	" " " " " "	" " " " " "	" " " " " "
5	W.	"	I.	"	Vertex.	" " " " " "	" " " " " "	" " " " " "
6	Col.	18	I.	"	"	" " " " " "	" " " " " "	" " " " " "
7	W.	18	I.	"	O. L. A.	5 hours.	One-half hour.	20 minutes.
8	Col.	28	VIII.	"	"	12 " " " " " "	2 hours " " " "	Few minutes..
9	W.	21	I.	"	Vertex.	" " " " " "	4 " " " " " "	15 minutes....
10	"	42	XII.	"	"	No record.	No record.	5 " " " " " "
11	"	28	V.	"	O. D. P.	12 hours.	1½ hours.	10 " " " " " "
12	Col.	"	II.	"	"	16 " " " " " "	1 hour.	3 " " " " " "
13	W.	29	III.	"	O. L. A.	14 " " " " " "	1 " " " " " "	15 " " " " " "
14	Col.	20	I.	"	Vertex.	12 " " " " " "	One-half hour.	6 " " " " " "
15	"	39	XI.	"	O. L. A.	48 " " " " " "	" " " " " "	10 " " " " " "
16	"	30	V.	Eighth month.	Vertex.	Several hours..	Several hours.	Several hours..
17	"	18	I.	Term.	O. L. A.	8 hours.	One-half hour.	5 minutes.....
18	"	20	I.	"	"	5 " " " " " "	15 minutes....	Few minutes .
19	W.	22	I.	"	"	15 " " " " " "	2½ hours.....	6 minutes.
20	"	25	I.	"	"	22 " " " " " "	One-half hour.	5 " " " " " "
21	Col.	"	II.	"	Vertex.	24 " " " " " "	15 minutes.	10 " " " " " "
22	W.	31	IV.	"	"	23 " " " " " "	2 hours.....	20 " " " " " "
23	"	27	II.	"	"	24 " " " " " "	2 " " " " " "	10 " " " " " "
24	Col.	22	I.	"	O. Post.	48 " " " " " "	One-half hour.	5 " " " " " "
25	"	15	I.	"	O. L. A.	3 " " " " " "	" " " " " "	12 " " " " " "
26	"	25	VI.	"	Vertex.	12 " " " " " "	15 minutes.	4 " " " " " "
27	"	18	I.	"	"	5 " " " " " "	1 hour.	5 " " " " " "
28	W.	"	IV.	"	"	12 " " " " " "	Few minutes..	Few minutes..
29	"	22	I.	"	O. L. A.	10 " " " " " "	30 minutes....	15 minutes..
30	Col.	31	VII.	"	"	8 " " " " " "	Few minutes	Few minutes..
31	W.	26	II.	"	"	10 " " " " " "	2 hours " " " "	" " " " " "
32	Col.	31	IV.	Eighth month	"	8 " " " " " "	One-half hour.	" " " " " "
33	W.	26	I.	Term.	"	12 " " " " " "	" " " " " "	12 minutes....
34	Col.	30	VII.	"	Vertex.	Several hours..	Several hours..	.....
35	"	18	I.	"	"	16 hours..	Few minutes..	10 minutes....
36	W.	24	I.	"	"	Many hours..	1 hour.	Few minutes..
37	"	33	IV.	"	O. L. A.	8 hours..	Few minutes..	3 minutes.
38	"	32	V.	"	"	6 " " " " " "	1 hour.	12 " " " " " "
39	"	32	I.	"	"	7 " " " " " "	2 hours " " " "	10 " " " " " "
40	"	27	I.	"	"	8 " " " " " "	2 " " " " " "	5 " " " " " "
41	Col.	34	X.	"	O. D. P.	15 " " " " " "	3 " " " " " "	At once..
42	"	38	XVII.	"	O. L. A.	48 " " " " " "	1 hour.	Few minutes..
43	W.	22	I.	"	O. Post.	36 " " " " " "	2 hours " " " "	5 minutes.
44	"	"	I.	"	O. L. A.	12 " " " " " "	1 hour.	5 " " " " " "
45	"	33	VI.	"	"	13 " " " " " "	45 minutes.	9 " " " " " "
46	Col.	38	XI.	"	O. D. P.	15½ " " " " " "	4 hours " " " "	7 " " " " " "
47	"	"	V.	"	O. L. A.	Several hours..	Several hours..	3 " " " " " "
48	"	22	II.	"	O. D. A.	" " " " " "	" " " " " "	5 " " " " " "
49	W.	24	I.	"	O. D. P.	6 hours.....	2 hours " " " "	8 " " " " " "

FORCEPS CASES.

Puerperium.	Result.		Remarks.
	Mother.	Child.	
Uneventful.....	Recovery..	Recovery..	Large male child.
".....	"	"	Normal.
".....	"	"	Normal.
Fever for a week.....	"	Death....	Forceps failed; craniotomy.
Uneventful.....	"	Recovery..	Normal.
Death in three hours ..	Death....	Death....	Puerperal eclampsia; moribund when seen.
Rapid convalescence..	Recovery..	Recovery..	Puerperal eclampsia.
".....	"	"	Normal.
Severe diarrhea ..	"	Death on sixth day.	Placenta previa (partial).
Rapid convalescence....	"	Death....	Cord prolapsed during first stage.
".....	"	"	Before labor.
".....	"	Recovery..	Normal.
Convulsions following labor.	"	Death in twenty-four hours.	Puerperal eclampsia.
Uneventful.....	"	Recovery..	Slight conjugate contraction; forceps at superior strait; small child; always difficult labor; four children born dead.
Death one-half hour after delivery.	Death....	Death....	Puerperal eclampsia; forceps failed; version.
Uneventful.....	Recovery..	Recovery..	Puerperal eclampsia; perineum torn; two stitches.
One convulsion after delivery.	"	"	Puerperal eclampsia; episiotomy; no tear.
Normal.....	"	"	Normal.
Uneventful.....	"	"	Puerperal eclampsia.
".....	"	"	Very easy delivery after twenty-four hours' hard labor.
".....	"	"	Normal.
".....	"	"	First child delivered with forceps.
Slight fever.....	"	"	Tear; three stitches.
Pneumonia on second day; one convulsion.	"	"	Puerperal eclampsia; episiotomy.
Uneventful.....	"	"	Anterior cervical lip thick and swollen, obstructing labor.
".....	"	"	Very easy delivery with short forceps.
".....	"	"	Easy delivery with short forceps.
".....	"	"	Very easy; short forceps.
".....	"	Death....	Child dead some time before delivery.
".....	"	Recovery..	Head firmly grasped by cervix.
Death in twenty-four hours.	Death....	Death....	Puerperal eclampsia.
Uneventful.....	Recovery..	Recovery..	Pendulous abdomen.
Death in twenty-four hours.	Death....	Death....	Placenta previa (neglected case).
Death in sixteen hours..	"	Recovery..	Puerperal eclampsia (neglected case).
Uneventful.....	Recovery..	"	Child hydrocephalic, dying six months later.
".....	"	"	Very large child.
".....	"	Death....	Child died on third day.
".....	"	Recovery..	Short forceps; very easy.
Some post-partum hemorrhage.	"	"	Slow convalescence.
Fever for a week.....	"	Death....	Elliott's and Tarnier's forceps failed; finally turned.
Fever and jaundice....	"	"	Puerperal eclampsia; uterine fibroid; forceps failed; version.
Uneventful.....	"	"	Forceps failed; version.
".....	"	Recovery..	Difficult delivery; slight pelvic contraction; large child.
".....	"	"	Some hemorrhage; all children delivered with forceps.
".....	"	"	Difficult delivery with Tarnier's forceps.
".....	"	"	Easy delivery.
".....	"	Death....	Made out conjugate three and one-half inches; forceps failed; craniotomy.
".....	"	Recovery..	Natural.

FORCEPS CASES—Continued.

No.	Race.	Age.	Para.	Time.	Presentation and position.	Duration of labor.		
						First stage.	Second stage.	Third stage.
50	W.	22	I.	Term.	O. L. A.	6 hours.	1 hour.	Few minutes...
51	"	31	III.	"	O. D. P.	25 "	2 hours.	12 minutes. ..
52	Col.	30	I.	"	"	48 "	1 hour.	Few minutes...
53	W.	28	I.	"	"	14 "	2 hours.	8 minutes.
54	Col.	24	II.	"	Vertex.	3 "	15 minutes.	5 "
55	W.	22	I.	"	O. L. A.	12 "	1 hour.	8 "
56	"	25	I.	"	Vertex.	3 "	45 minutes.	5 "
57	Col.	18	I.	"	O. D. P.	36 "	One-half hour.	5 "
58	W.	25	I.	"	O. L. A.	12 "	3 hours.	8 "
59	"	26	II.	"	"	3 "	One-quarter hour.	5 "
60	"	28	I.	"	Vertex.	12 "	3 hours.	Few minutes...
61	"	37	IX.	"	O. L. A.	26 "	One-half hour.	15 minutes.
62	Col.	18	I.	Seventh month.	Vertex.	12 "	" "	Few minutes...
63	W.	25	II.	Term.	O. L. A.	3 "	3 hours.	10 minutes.
64	Col.	23	III.	"	Vertex.	36 "	1 hour.	Few minutes...
65	W.	"	I.	"	"	36 "	Several hours.	8 minutes.
66	"	"	II.	"	O. L. A.	12 "	2 hours.	10 "
67	Col.	23	I.	"	"	6 "	One half hour.	Few minutes...
68	W.	22	I.	"	O. D. P.	8 "	Three quarter hour.	10 minutes.
69	"	37	II.	"	"	4 "	2 hours.	15 "
70	"	25	I.	"	O. L. A.	48 "	3 "	10 "
71	"	19	I.	"	Vertex.	5 "	2 "	8 "
72	Col.	36	I.	"	O. L. A.	18 "	2 "	5 "
73	W.	31	III.	"	O. D. P.	Several hours.	3 "	6 "
74	Col.	16	I.	"	O. Post.	4 hours.	20 minutes.	Few minutes...
75	"	22	I.	"	O. L. A.	4 days.	15 "	One-half hour.
76	"	22	I.	"	O. D. P.	Several hours.	Few minutes...	4 minutes.
77	W.	21	I.	"	O. L. A.	" "	2 hours.	15 "
78	"	32	VI.	Seven and one-half months.	O. D. P.	6 hours.	2 "	3 "
79	"	22	II.	Term.	"	10 "	One half hour.	5 "
80	"	30	III.	"	"	36 "	" "	Few minutes...
81	"	30	I.	"	O. L. A.	12 "	2 1/2 hours.	3 "
82	Col.	24	I.	"	O. D. P.	48 "	6 hours.	15 "
83	W.	25	I.	"	"	Several hours.	2 "	5 "
84	"	"	II.	"	O. L. A.	5 hours.	1 hour.	15 "
85	"	26	I.	Eighth month.	"	16 "	1 "	One-half hour.
86	"	22	I.	Term.	"	24 "	4 "	10 minutes.
87	Col.	27	I.	"	O. Post.	48 "	Several hours.	One-half hour.
88	W.	23	IV.	"	O. D. A.	12 "	One-half hour.	10 minutes.
89	"	18	I.	"	O. L. A.	16 "	2 hours.	5 "
90	"	25	I.	"	"	6 "	2 "	Few minutes...
91	"	37	VIII.	"	O. D. P.	4 "	20 minutes.	" "
92	"	31	IX.	Eighth month.	O. Post.	4 "	15 "	5 minutes.
93	"	24	II.	Term.	O. D. P.	24 "	2 hours.	Few minutes...
94	"	19	I.	"	O. L. A.	16 "	3 "	10 minutes.
95	Col.	17	I.	"	O. Post.	12 "	1 hour.	5 "
96	W.	34	IV.	"	O. D. P.	48 "	3 hours.	5 "
97	"	"	II.	"	O. L. A.	12 "	One-half hour.	12 "
98	"	30	III.	"	O. D. P.	24 "	3 hours.	One-half hour.
99	"	26	I.	"	O. L. A.	16 "	2 "	6 minutes.
100	Col.	36	VIII.	"	Vertex.	24 "	One-half hour.	Few minutes...

FORCEPS CASES—*Continued.*

Puerperium.	Result.		Remarks.
	Mother.	Child.	
Uneventful.	Recovery..	Recovery..	Short forceps; easy; slight tear.
Some fever for a week...	"	"	Difficult extraction.
Uneventful.....	"	"	Delivered occiput posterior; short forceps; easy delivery; no tear.
"	"	Death. . .	Child died three weeks before labor.
"	"	"	Puerperal eclampsia; child dead some time.
Tedious convalescence..	"	Recovery..	Puerperal eclampsia (severe type).
Uneventful.	"	"	Child's head bruised.
"	"	"	Easy delivery.
"	"	"	Easy delivery.
"	"	"	Easy delivery; head some time on perineum.
Fever.....	"	"	Difficult labor from thickened cervix with old tear.
Death in six weeks in other hands.	Death. . .	Death....	Eclampsia (neglected case); bad surroundings.
Uneventful.	Recovery..	Recovery..	Forceps could have been used earlier with relief of pain.
Death in six hours . . .	Death.....	Death....	Forceps failed; version; neglected; did a craniotomy in previous labor.
Uneventful.	Recovery..	Recovery..	Seen in consultation; should have been delivered sooner.
"	"	"	Easy delivery.
"	"	"	Easy delivery.
Obstinate diarrhea . . .	"	"	Pains failed after completion of first stage.
Uneventful.	"	"	Normal.
Tedious; marked parametric inflammation.	"	"	Gonorrheal inflammation; purulent ophthalmia in child.
Uneventful.	"	"	Normal.
"	"	"	Normal; first labor after sixteen years married.
"	"	"	Waters broke two weeks before delivery, with pain off and on.
Several convulsions....	"	"	Puerperal eclampsia.
Free hemorrhage.	"	"	Neglected case; uterine inertia.
Uneventful.....	"	"	Normal.
"	"	"	Normal.
Painful hemorrhoids....	"	"	Ophthalmia neonatorum.
Uneventful.....	"	"	Very easy delivery.
"	"	"	Occiput posterior; no tear.
"	"	"	Normal.
"	"	"	Long and painful labor.
Fever for ten days . . .	"	"	Easy delivery.
Uneventful.....	"	"	Easy delivery.
Slow convalescence.	"	Death. . .	Marked anasarca and albuminuria; child long dead.
Uneventful.....	"	Recovery..	Difficult delivery.
Anuria; collapse	Death.....	Death....	Neglected case; uterine inertia; collapse.
Uneventful.....	Recovery..	Recovery..	Normal.
"	"	"	Normal.
"	"	"	Perineal tear; four stitches.
"	"	"	Normal.
"	"	Death.....	Child lived twenty-four hours; last five children born dead.
"	"	Recovery..	In hard labor several hours.
"	"	"	Slight pains over a week preceding labor proper.
"	"	Death.....	Occipito-posterior; head wedged tight; thick, unyielding cervix; two incisions in the os; perineum torn; four stitches.
"	"	Recovery..	Always has a slow, hard labor.
"	"	"	Hysterical; bore her pains badly.
"	"	"	Justo-minor pelvis; hard labor; no tear.
"	"	"	Perineum torn by shoulder; four stitches.
"	"	"	Vagina blocked by fibroid tumor of cervix, weighing one pound and eleven ounces.

FORCEPS CASES—*Continued.*

No.	Race.	Age.	Para.	Time.	Presentation and position.	Duration of labor.		
						First stage.	Second stage.	Third stage.
101	W.	25	II.	Term.	O. L. A.	24 hours.	3 hours.	10 minutes.
102	"	"	IV.	"	O. Post.	6 "	2 "	Few minutes.
103	"	"	II.	"	O. L. A.	26 "	1 hour.	" "
104	"	25	I.	"	O. Post.	12 "	1½ hours.	" "
105	"	28	III.	"	"	12 "	2 hours.	" "
106	Col.	17	I.	"	O. L. A.	3 "	1 hour.	" "
107	W.	30	II.	"	Vertex.	24 "	2 hours.	One-half hour.
108	"	21	I.	"	O. L. A.	16 "	1 hour.	5 minutes.
109	"	30	III.	"	O. D. P.	9 "	1½ hours.	10 "
110	"	22	I.	"	O. L. A.	10 "	2 "	Few minutes.
111	"	"	I.	"	"	8 "	2 "	10 minutes.
112	Col.	35	I.	"	Vertex.	24 "	4 "	20 "
113	"	27	I.	"	O. L. A.	48 "	One-half hour.	15 "
114	W.	24	I.	"	"	24 "	2 hours.	10 "
115	"	32	VI.	"	"	16 "	One-half hour.	Few minutes.
116	"	25	II.	Eighth month. Term.	O. D. P.	6 "	2 hours.	" "
117	"	"	I.		"	14 "	3 "	10 minutes.
118	Col.	26	Multi.		"	4 days.	24 "	15 "
119	W.	25	IV.	"	O. L. A.	8 hours.	2 "	Few minutes.
120	"	25	I.	"	"	8 "	2 "	" "
121	Col.	35	V.	"	"	16 "	2 "	15 minutes.
122	W.	"	I.	"	O. D. P.	6 "	2 "	15 "
123	"	28	II.	"	O. L. A.	24 "	2 "	10 "
124	"	25	I.	"	"	5 "	1 hour.	8 "
125	"	35	V.	"	O. D. P.	24 "	1 "	5 "
126	"	29	IV.	"	O. L. A.	6 "	2½ hours.	5 "
127	"	31	IV.	"	O. D. P.	12 "	4 "	One-half hour.
128	"	45	IX.	"	O. L. A.	24 "	One-half hour.	" "
129	"	33	V.	"	"	14 "	20 minutes.	10 minutes.
130	Col.	17	I.	"	O. D. P.	10 "	One-half hour.	One-half hour.
131	W.	22	I.	"	"	16 "	2 hours.	" "
132	"	27	I.	"	"	36 "	3 "	10 minutes.
133	"	35	I.	Eighth month.	"	18 "	2½ "	15 "

straight and simple path through the intricacies woven in the closet."¹ I call this obstetrical wisdom.

In traction I follow the curve of Carus, with a steady pull in simple cases, and a side-to-side movement when the head is very tight, and from which I have seen no bad effects. When we take a tight cork out of a bottle with our fingers we make use of this same principle, and it works. I remove the blades before the head is born, to save the perineum. My chief concern is the cervix, which I examine at short intervals. Unless there is no time to lose—and this rarely happens—I give an

¹ Barnes, op. cit., p. 44.

FORCEPS CASES—*Continued.*

Puerperium.	Result.		Remarks.
	Mother.	Child.	
Uneventful.	Recovery..	Recovery..	First labor difficult, with forceps.
"	"	"	All her labors hard and instrumental.
"	"	Death.....	Slight conjugate contraction; forceps failed; version.
"	"	Recovery..	Seen in consultation; perineum torn; four stitches.
"	"	"	No tear.
"	"	"	Puerperal eclampsia; Dührssen's incisions
"	"	"	Perineum torn; four stitches.
"	"	"	Normal.
"	"	"	Normal.
"	"	"	Normal.
Incontinence of urine two weeks.	"	"	Normal, barring bladder trouble.
Uneventful.	"	"	In consultation; physician in charge had tried forceps unsuccessfully.
"	"	"	Perineal tear; four stitches.
"	"	"	Normal.
Slow convalescence..	"	"	Albuminuria; hemoglobinuria; congestion of the lungs.
Fever; poor involution..	"	"	Fever began several days before delivery (malarial).
Uneventful.	"	"	Tear; three stitches; very large child.
Retention of urine four days.	"	Death.....	Long neglected case; drew off by catheter four quarts urine!
Uneventful.	"	Recovery..	Three children delivered with forceps.
"	"	"	Some conjugate contraction; large child; difficult delivery.
"	"	"	Slow and very painful.
"	"	"	Albuminuria; threatened convulsions.
"	"	"	Normal.
"	"	"	Normal.
"	"	"	Normal.
"	"	"	Normal.
"	"	Death.....	Justo-minor pelvis; forceps failed; version.
High fever at birth, lasting five days.	"	"	Death on tenth day from puerperal thrombosis and embolism.
Uneventful.	"	Recovery..	Normal.
Death in twenty-four hours.	Death....	Living....	Puerperal eclampsia.
Uneventful.	Recovery..	Death.....	Large child; pelvic measurements under size.
"	"	Recovery..	Normal.
"	"	"	Occiput posterior; easy delivery; tear; three stitches.

anesthetic. That the bladder and rectum should be emptied goes without saying.

I have on more than one occasion used the forceps when I should have turned primarily, erring here from the conviction that the forceps when applicable is a more conservative and safer method for the child. Once I did a version, failing with the forceps, when I should have done a craniotomy primarily. The patient, however, was so far gone from neglect and delay that I doubt whether any method offered any hope. Otherwise I have never regretted the use of the forceps; on several occasions I regretted not having applied it sooner.

I have before me a paper on "Three Thousand and Thirty-six Cases of Labor," with no mortality among the women and only about 3 per cent among the children. The forceps was used in 28 cases. These results were obtained in a country practice near Philadelphia in a very sturdy and healthy community. I have also before me another paper on 590 cases of labor with but 1 death among the children and no maternal mortality. The forceps was always left at home, though the practice was in the country and the physician was often far from home. These two papers are surely a contrast to my own. They simply show the good results of a *laissez-faire* policy in a long array of natural cases in a vigorous and healthy community. It is from such sources that the forceps is condemned; from the same source comes the protest against antiseptic midwifery. They find but little need for interference in the country, and they imagine the conditions in the city must be the same.

During my student days I must confess to being influenced by the teachings of Robert Barnes, whose "Obstetrical Operations," published over twenty years ago, I still regard as a classic in our literature. It showed scholarship as well as obstetrical wisdom. I am glad to see that a little book on "Difficult Labor," by G. Ernest Herman, a concise and true epitome of the present state of obstetrics, draws largely from Barnes.

The forceps is originally an English instrument, and it is in England and America that it has found its fullest usefulness. I think that we are here ahead of Germany and France.

In a recent work by O. Schaeffer¹ the following is taught: "The forceps operation is indicated when danger threatens the mother and child. Weak pains or pelvic contraction by themselves are no indication." This represents fairly, I believe, the German position in this matter. Judging from the Baude-locque Clinic, pretty much the same is taught in France. In 1894, out of 2,137 women delivered, the forceps was used 57 times while symphyseotomy was done 21 times. In 1895, out of 2,074 women delivered, the forceps was used 53 times, with 20 symphyseotomies. Evidently the forceps was never used *in loco doloris*, and I contend that this use, in proper hands, enhances the value of one of our most useful and most conservative instruments. At the time that Barnes published his

¹ "Anatomical Atlas of Obstetric Diagnosis and Treatment," by O. Schaeffer, M.D., New York, 1896, p. 229.

work, Martin, in Germany, brought out his "Leitfaden der operativen Geburtshülfe"—the English book direct and practical, the German diffuse and theoretical; the one teaching the use of the forceps, the other explaining its philosophy; the one showing the simple way of applying the forceps, the other teaching so many positions of the head, so many ways of applying the forceps, that the student was in a daze of bewilderment. I was reminded of the fable of the toad asking the centipede to explain to him the philosophy of locomotion, and that the centipede, after a long deliberation on the subject, found he had lost the power of moving his legs!

I contend that the indications for the forceps as laid down in our text books are really the indications in the abstract, that they must vary according to the skill of the operator, and that the value of the forceps is a variable x depending upon the operator. The operator, to know the problem at the time, must not only know the conditions with his patient, but he must know his own fitness or unfitness for operating. An ordinary jackknife in the hands of a Swiss carver changes a block of wood into a work of art, while the same instrument in the hands of the ordinary boy brings blood and pain. The important question is, Can you use the forceps properly? rather than, Is it indicated in this case? In the present state of obstetrics the usual indications are clearly and precisely stated and are easily enough learned, while one's individual skill must be acquired and consciously realized. Given a case with certain conditions and a good operator, and I should say, operate; while the same case with a poor operator, I should say, wait.

I have heard an obstetrics teacher take every opportunity to discredit the forceps, and, when the time came for him to show its application to his class, apply it improperly. Verily, from his standpoint the man was right, for he should never apply it himself unless there were absolutely no other remedy.

In the paper above mentioned a physician reports results in 590 cases of labor where the forceps was not once applied, and who regrets its non-use but in one case where he thinks the child might have been saved. His paper simply proves that he practised in a healthy community, that his patients were good breeders, and that unaided Nature can often work wonders. Now, I contend that had he had the most approved model of the forceps, and not left it at home, as he affirms, and *had he had a conscious skill in its use*, he might have saved

some of these women many hours of suffering, and not only without any injury, but with a distinct gain; and he might have saved the only still-born child, which he himself admits.

One of the glories of modern medicine is its power to relieve pain. Diseases which still defy a reduction in their death rate may at least be made less painful and more bearable. Drugs which cannot directly cure or shorten certain diseases can at least make the patient more comfortable. I contend that the use of the forceps *in loco doloris* is a legitimate function of that instrument, and that it can be so used without injury to mother or child. That this use of the forceps outside the domain of absolute necessity demands greater judgment and discrimination, and I may say greater skill, I admit, for from its larger field of application it is more liable in unskilled hands to do injury. Given a labor in any way prolonged, the more skilled you are, the better you know the patient, the more certain you are of the position of the child and the condition of the uterus and pelvis, the more justified you are in the use of instruments. And, on the contrary, if you are not skilled in its use, if its application simply means to you to stick it in, to lock it, and to pull, you had better sit down by your patient and wait till you are assured there is no other remedy.

I have heard an obstetrics teacher boast of advising against the forceps in a certain difficult case where other physicians had wanted to use it. Though convinced that the woman was suffering greatly, and that she had been much longer in labor than the average and that she would still have several hours of suffering, he was sure she was equal to the occasion and would be eventually safely delivered. Looking around with a proud smile, he continued: "In eight hours the baby came and mother and child did well. And, gentlemen, there was no ruptured perineum to sew up, and no lacerated cervix with its subinvolution, or endometritis and all its train of ills, to keep our patient a wretched invalid."

Before a class of young students this will bring an applause, but before a body of intelligent practitioners it must create a smile. The fallacy of it all is that he takes it for granted that the cervix and perineum will be ruptured. In other words, he assumes that the forceps will be improperly used. So far as the perineum goes, the forceps has nothing to do with it, for it should be removed before the head is born; and as to the cervix, will any intelligent physician deny that, in an ordinary

case of delayed labor, the forceps can be used without injury to mother or child?

This case typifies a class of practitioners who cry out not only against the forceps, but against every other instrument or instrumental method, and who base their opposition upon the misuse or abuse of an instrument. They will also tell you they never have a ruptured perineum.

I must admit to a free use of the forceps, and its blessings seem to me greater every day. I have not only used it when I considered it absolutely necessary, but with equal satisfaction when I felt I had saved the woman an hour or more of severe pain, and I fail to see where I have injured either mother or child.

There are forceps cases and forceps cases—cases which demand great skill and a large expenditure of force, and cases requiring but little effort and but a few minutes to deliver.

To one in full obstetric practice how common it is to get cases where the head comes safely through to the pelvic floor and there rests, the uterus apparently satisfied to have brought the labor to that point with no concern for its completion! The pains are short and inefficient, and really distress the patient as much as more severe ones, while the pressure of the head is most distressing, and the patient becomes irritable and worn out. Forceps here applied requires but the gentlest force to bring the head to the vulvar outlet, and, unless the operator is a miserable bungler, it is impossible to do harm in any way. This little operation saves perhaps one, two, or three hours, and what a satisfaction to all concerned! Here is a case in point this very day of writing: A woman, healthy and strong, mother of three children, all of whom I delivered easily without any interference, was in her fourth labor. Even in her first confinement the second stage was not over an hour, while the second and third children were delivered even more easily. In this labor, pains started at 2:30 A.M., and when seen by me at 10 A.M. I found the vertex presenting O. L. A., the cervix fully dilated, and the head resting on the pelvic floor. Eleven o'clock passed, and 12 o'clock, with little or no progress; 1 o'clock passed and still no progress, the pains worrying and ineffective; 1:30 passed and no progress, and the woman tired and irritable. She had been three and a half hours in the second stage. I now gave a little chloroform, applied the forceps without changing her position in bed, and with the gentlest force brought the head down till it bulged the perineum, removed

VERSION CASES.

No.	Race.	Age.	Para.	Time.	Presenta- tion and position.	Character of labor.	Mode of delivery.
1	W.	35	V.	Term.	O. L. A. Naegele obliquity.	Protracted, with se- vere but ineffectual pains.	Version
2	"	19	I.	"	Vertex.	Slow	Cervix dilated by hand, and version.
3	Col.	36	V.	Eighth month.	"	Very dense, tight cervix. Ineffectual pains.	Barnes' dilators; for- ceps failed; version.
4	W.	33	Multi.	Term.	Sc. D. P.	Short and easy	Version and delivery in fifteen minutes.
5	Col.	38	XVII.	"	O. L. O.	Protracted and diffi- cult.	Version made difficult by fibroid in anterior uterine wall.
6	"	34	X.	"	O. D. P.	Protracted and diffi- cult.	Elliott's and Tarnier's forceps failed; ver- sion.
7	"	28	IV.	"	Sc. D. A.	A neglected shoulder; left hand in vagina.	Version and delivery in thirty minutes.
8	W.	22	I.	"	O. Post.	Slow and very pain- ful.	Version after forceps failed.
9	Col.	34	VIII.	"	Sc. D. A.	A neglected shoulder. Child dead four days. Waters broke twenty-four hours before.	Version
10	"	37	"	"	Sc. L. A.	A neglected shoulder, with prolapse of cord.	Version and delivery in fifteen minutes.
11	"	23	III.	"	O. L. O.	In hard labor thirty- six hours.	Forceps failed, and version.
12	W.	25	"	Sixth month.	Vertex.	Induced labor	Version
13	"	26	II.	Term.	O. L. A.	Difficult	Forceps failed; version.
14	"	31	IV.	Sixth and a half month.	Vertex.	Placenta previa, great hemorrhage.	Version and delivery in twenty-five min- utes.
15	"	28	III.	Sixth month.	"	Placenta at edge of internal os.	Version
16	"	31	IV.	Term.	O. D. P.	In hard labor fifteen hours.	Forceps failed; ver- sion.

VERSION CASES.

Puerperium.	Result.		Remarks.
	Mother.	Child.	
Uneventful	Recovery.	Death.	Prolapsus of cord early in labor.
Pronounced albuminuria and anasarca, with threatened convulsions. Rapid improvement.	"	Recovery.	Child's right thigh broken in delivery. Union without deformity.
Puerperal eclampsia, albuminuria, anasarca. Never returned to consciousness.	Death.	Death.	In convulsions several hours before summoning help.
Uneventful	Recovery.	Recovery.	Version in a roomy pelvis and a freely movable child, with the membranes unbroken, becomes a very simple operation.
Puerperal eclampsia, fever, jaundice.	"	Death.	The uterine fibroid led me to turn rather than use forceps.
Fever for five days....	"	"	Version meant three-quarter hour's hard work.
Uneventful	"	"	Prolapsus of cord and pulseless early in labor.
Fever for six days...	"	"	Version and extraction slow and difficult.
Uneventful	"	"	Twenty-four hours in hard labor before summoning help.
"	"	"	Placenta inserted low down.
Death in thirty-six hours, with symptoms of peritonitis and shock.	Death.	"	Conjugate diameter three and one-half inches. In previous pregnancy called early and did a craniotomy.
Well advanced in tuberculosis. No improvement after delivery.	Recovery.	"	Induction of labor from incessant vomiting aggravating the tuberculosis.
Uneventful	"	"	Some conjugate contraction.
"	"	"	Placenta previa centralis.
"	"	"	Version and delivery easy.
"	"	"	Justo-minor pelvis and large child.

the blades, and easily delivered the head. The child had a large head and weighed eleven pounds, which explained the delay. I did mother and child not the slightest injury, and probably saved her one or more hours' suffering. It was hardly a forceps case. And how many such cases come to the obstetrician! And how easily they are relieved! And how many hours of suffering in the aggregate have been saved! Surely such interference is hardly more than relieving an overloaded rectum.

I am fully aware of the dangers of meddlesome midwifery, and especially meddlesome midwifery in ignorant hands—for there is a distinction—but I believe that the ill effects of obstetrical nihilism are equally great. We in the South have abundant opportunity of seeing the results of a *laissez-faire* policy as practised by the ignorant midwives upon whose mercy the large majority of the colored throw themselves. I have already given one such case of this neglect. Here is another: Called to a negress after five days of hard labor, with, of course, complete uterine inertia. It took me just one-half hour to lock my forceps. I delivered a large dead child with the largest caput succedaneum I have ever seen. The mother recovered. Where but among the colored, excepted perhaps in the wilderness, could one find these results of neglect and delay?

The cervical tear so much dwelt upon, and rightly, too, in many cases, depends upon when and how the forceps is used. There are cases where delivery must be rapid to save mother or child, or both, and where the cervical tear is almost nothing compared with the other alternative. When one can wait till the cervix is well dilated, the forceps skilfully used tears nothing.

Version Cases.—I have tabulated 16 cases of version (pages 376-377), with 2 deaths among the women and 14 deaths among the children—certainly a very gloomy showing. A glance at the table, however, will show the complications which had to be met. In 3 cases the child was dead before labor or version; 4 were premature; in 2 cases there was puerperal eclampsia; in 2 conjugate contraction; in 1 case justo-minor pelvis with large child; and 1 case complicated with uterine fibroid, making the extraction very difficult.

This table shows the danger to the child from version where there is any complication or impediment to its fairly rapid delivery. Had the forceps not failed in 6 cases the mortality

record would have been better. The forceps must be regarded as the more conservative measure for both mother and child, and when there is any choice at all it should be in favor of this instrument.

The Infant Mortality.—Reference to the table pages (380–383) will show 80 deaths, including the fetus of a few weeks as well as the infant dying during the puerperium. It shows further the following complications: 2 craniotomies, 3 monstrosities where the malformation was sufficient to cause death, 8 cases of eclampsia, 16 premature before the seventh month (including induced miscarriages), 13 premature between the seventh month and term, 6 cases of occiput posterior, 2 cases of Naegele obliquity with prolapse of the cord, 3 from placenta previa, 6 from syphilis where there could be no doubt of the etiology, 9 where death occurred before delivery, and 9 deaths from forceps delivery where the extraction was very difficult from unusual size of the child or a small pelvis, or both combined.

Of the monstrosities, 1 was an acephalous monster; 1 tallies well with a case described by Dr. Naumack in the *New York Medical Journal* for July 20th, 1895, and which, according to Fisher, would be classed as cephalopagus craniodidymus; 1 where the lower jaw was a mere rudiment, both forearms rudimentary and twisted. They were all associated with great hydramnios.

One colored infant, dying two weeks after delivery, born without ears, the pinna represented by a slight fold of the skin, and the external meatus by a dimple. After death I was permitted to remove the skin at this point, and I found a minute piece of cartilage, irregularly spiral-shaped; there was no opening in the bone or bony canal. This must be a very rare condition. Dr. Burt G. Wilder has described a somewhat similar condition in an adult negro. Sir William Turner showed me an adult temporal bone, found years ago in the dissecting rooms at Edinburgh, without any history. There was complete absence of external meatus or any internal ear. It was the only case he had seen.

I may also mention a marked case of hereditary polydactylism where 8 children in one family were born with a double minimus on one or both hands. We still seem far from any scientific explanation of this condition. Weismann, in his "Germ Plasm," speaks of it as excessive local nutrition causing the duplication of the group of determinants representing

INFANT MORTALITY.

No.	Race.	Sex.	Month.	Presentation and position.	Character of labor.	Mode of delivery.
1	Col.	Boy.	Term	O. Posterior.	Very difficult.....	Craniotomy; forceps failed.
2	W.	Girl.	"	O. L. A ..	Difficult.....	Version
3	"	Boy.	"	S. D. A ...	Slow	Brought down leg.
4	Col.	"	"	Vertex	Poor pains; unyielding os.	Forceps.....
5	W.	Girl.	Seventh month.	Breech	Slow labor.....	Unaided
6	"	Boy.	Sixth month...	O. L. A ..	Natural.	"
7	"	"	Term	Vertex	Slow and difficult.	Forceps.....
8	"	"	"	"	Slow. } Twins.	Unaided.....
9	"	Girl.	"	"	"	"
10	"	"	"	O. D. P....	Slow.....	Forceps.....
11	Col.	Boy.	"	S. L. A ...	"	Brought down leg.
12	"	"	"	O. D. P ...	"	Forceps.....
13	"	"	Eighth month.	Vertex	"	Unaided.....
14	W.	Girl.	Term	"	Normal.....	"
15	Co	"	"	"	Slow	Forceps.....
16	"	Boy.	"	"	Normal	Unaided.....
17	"	"	"	Breech	Twins; protracted.	Brought down leg.
18	"	Girl.	"	Vertex	Protracted.....	Forceps failed; version...
19	"	Boy.	"	"	Slow	Unaided
20	"	"	Eighth month.	"	"	"
21	W.	"	Term	"	Normal	"
22	Col.	Boy.	"	O. L. A ...	Slow	Forceps.....
23	"	"	Eighth month.	O. L. A ...	"	"
24	"	"	Term	Vertex	Three days; neglected.	Traction on head.....
25	"	Girl.	"	"	Slow, with profuse hemorrhages.	Forceps.....
26	"	Boy.	"	O. Post ..	Very difficult....	Forceps failed; turned...
27	W.	Girl.	"	O. L. A ...	"	Forceps.....
28	"	"	"	Vertex	Twin labor.....	Unaided
29	Col.	"	"	O. L. A ...	Difficult	Version.....
30	"	"	"	Sc. L. P....	"	"
31	W.	Boy.	"	O. Post ..	"	Forceps failed; version...
32	Col.	"	"	S. D. A ...	"	Left hand protruding through vulva; version.
33	"	"	"	Sc. D. P....	"	Version.....
34	"	"	"	O. L. A ...	Protracted and difficult.	Forceps
35	"	"	Seventh month.	Vertex	Slow	Ruptured membranes ..
36	W.	"	Sixth month...	"	Easy.	Unaided....
37	"	Boy.	Fifth and a half month.	S. L. A ...	Very difficult..	Fetus removed piecemeal.
38	Col.	"	Term	Vertex	"	Strong traction; forceps..
39	"	"	"	O. D. A	"	Forceps failed; craniotomy.
40	"	"	"	O. D. P....	Very hard labor...	Unaided
41	"	"	"	S. D. A ...	Twins; difficult...	Brought down leg.....
42	W.	"	Sixth month...	Breech	Easy.....	Unaided
43	"	Girl.	Sixth and a half month.	Vertex	"	"
44	Col.	"	Term	"	"	"
45	W.	"	Fourth month	"	Protracted	Fetus removed piecemeal.
46	Col.	Boy.	Term	O. D. P....	Protracted and difficult.	Forceps

INFANT MORTALITY.

Complications.	Cause of death.	Remarks.
Occiput posterior	Craniotomy.	
Prolapse of cord	Asphyxia	Naegele's obliquity; long in labor before summoning help.
Compression of the cord	"	
Puerperal eclampsia	"	
Mother with malarial fever. ..	Prematurity.	Child very feeble, living one and a half hours.
None	"	
Placenta previa	Asphyxia	Repeated hemorrhages during pregnancy.
Mother's health wretched	Inanition.	
Chronic malarial poisoning	"	
Prolapsed cord; Naegele's obliquity.	Asphyxia	Cord pulseless when first seen.
Both legs extended on body and both arms alongside the head.	"	Very difficult delivery.
.....	?	Child long dead; epidermis peeled off.
Mother kicked in abdomen.	Placental hemorrhage.	Child dead five days.
Hydronephalocele	Removal of growth.	The tumor prevented the child from nursing.
Puerperal eclampsia	Toxemia; asphyxia.	Death on second day.
Constant vomiting throughout pregnancy.	?	Large and apparently healthy child, dying on second day.
Hydramnios with uterine fibroid.	Asphyxia	The other twin, presenting by vertex, delivered by forceps, lived; mother also died.
Puerperal eclampsia	Toxemia.	
Prolapse of cord early in labor ..	Asphyxia.	
.....	Prematurity.	Child very small, size of a five months' fetus.
Acephalous monster	Malformation.	
.....	?	Child died before labor.
Puerperal eclampsia	Toxemia	Death on fourth day, mother dying few hours later.
Decomposed head protruding through the vulva.	?	
Placenta previa	Asphyxia	Death of mother from hemorrhage—neglected case.
Contracted conjugate	"	
Head impacted.	Cerebral compression.	Hematoma capitis; death on third day.
Twins; poor pains	?	First child born alive.
Puerperal eclampsia; uterine fibroid.	Asphyxia, toxemia.	Five children born dead; only one child living out of seventeen children.
Left hand at vulva for four hours; cord prolapsed; pulseless.	Asphyxia.	
Occiput posterior.	"	
Sc. D. A.	"	Child dead four days.
Right hand at vulva; detached placenta.	"	Placental site low down, left side.
Very large child	Cerebral compression.	Died on second day.
Tough and unyielding membranes.	Prematurity	Died in twelve hours.
Malarial fever.	"	
.....	"	
Child's abdomen enormous from decomposition.	Syphilis.	
Contracted conjugate	Craniotomy	Mother recovered.
Very large child	Cerebral compression.	Died in twenty-four hours.
Prolapse of cord	Asphyxia	Second child born alive.
Malarial fever.	Prematurity.	
.....	"	
Puerperal eclampsia	Toxemia, asphyxia.	
.....	Criminal abortion.	
.....	Cerebral compression.	Died shortly after birth.

INFANT MORTALITY—*Continued.*

No.	Race.	Sex.	Month.	Presentation and position.	Character of labor.	Mode of delivery.
47	Col.	Boy.	Term.....	S. D. A....	Protracted.....	Brought down leg.
48	W.	Girl.	Fourth month.	O. L. A....	Easy.....	Forceps.....
49	Col.	Girl.	Term.....	O. L. A....	".....	".....
50	W.	Boy.	".....	Vertex.....	Difficult.....	".....
51	"	Boy.	".....	Vertex.....	Difficult.....	".....
52	Col.	Girl.	Seventh month.	".....	Slow.....	".....
53	W.	Boy.	Term.....	O. L. A....	Natural.....	Unaided.....
54	"	Boy.	Sixth week....	".....	Easy.....	".....
55	Col.	Girl.	Term.....	Vertex.....	Protracted and difficult.	Forceps failed; version ...
56	W.	"	".....	O. L. A....	Natural.....	Unaided.....
57	Col.	"	".....	Sc D. A....	Protracted.....	Version; drew down leg..
58	W.	Boy.	Third month...	O. L. A....	Easy.....	Curette.....
59	Col.	Boy.	Term.....	O. L. A....	Protracted and difficult.	Forceps.....
60	W.	"	Eighth month.	Breech....	Easy.....	Unaided.....
61	"	"	Seventh month.	Vertex....	".....	".....
62	"	"	Eighth month.	O. L. A....	Protracted.....	Forceps.....
63	Col.	Girl.	".....	O. Post....	".....	".....
64	W.	Boy.	Sixth month....	Vertex....	".....	Version.....
65	"	Boy.	Eighth month.	O. Post....	Easy.....	Forceps.....
66	Col.	.....	Seventh month.	.....	Difficult.....	Child removed piecemeal.
67	W.	Boy.	Term.....	O. L. A....	Very difficult..	Forceps failed; turned...
68	"	Boy.	Fifth month....	Vertex....	Very easy.....	Unaided.....
69	"	Boy.	Seventh month.	".....	".....	".....
70	"	"	Sixth and a half month.	Breech....	} Twins; easy.	Delivered by foot.....
71	"	"	Sixth and a half month.	".....		".....
72	"	"	Sixth and a half month.	Vertex....	Easy.....	Version.....
73	"	.....	Fifth and a half month.	".....	Slow.....	Fetus removed piecemeal.
74	"	Girl.	Sixth month...	".....	Easy.....	Version.....
75	Col.	Boy.	Term.....	O. D. P....	Protracted, neglected, and very difficult.	Forceps.....
76	W.	Girl.	".....	O. L. A....	Protracted and difficult.	".....
77	"	Boy.	".....	O. D. P....	Very difficult....	".....
78	"	Girl.	".....	O. L. A....	Protracted, neglected.	".....
79	"	Boy.	".....	S. D. A....	Protracted.....	Brought down leg.....
80	"	Girl.	".....	O. D. P....	Difficult.....	Forceps.....

the part doubled.¹ But this is descriptive more than explanatory. I have seen several cases of polydactylism among the negroes.

As to artificial respiration in asphyxia of the new-born, I have used the Sylvester as well as the Byrd-Dew method, and I have failed to see any superiority of the one over the other. The Sylvester method enables one to carry out the chest movements with the child in hot water at the same time, which

¹ Journal of Anatomy and Physiology, April, 1896.

INFANT MORTALITY—*Continued.*

Complications.	Cause of death.	Remarks.
Slight conjugate contraction.	Asphyxia	Child long dead.
.....	Prematurity.	
Syphilis.	Syphilis.	Child dead three weeks.
Puerperal eclampsia	Toxemia.	
Enormously swollen and thick- ened cervix.	Asphyxia	Body of child delivered fifteen minutes after birth of head.
Puerperal eclampsia.	Toxemia.	
Cord tight around child's neck.	Asphyxia	Child made a few gasps.
Pernicious vomiting of preg- nancy.	Prematurity	Induced miscarriage.
Contracted conjugate.	Asphyxia	Long neglected case.
None	?	Child dead some time.
Sc. D. A.	Asphyxia	Left foot and hand in vagina.
Pernicious vomiting	Prematurity.	Induced miscarriage.
Neglected labor; impacted head.	Asphyxia	Long dead.
None	?	Very feeble, dying in a few hours.
Syphilis.	Syphilis.	Dead some time.
Anasarca; albuminuria.	Toxemia.	
Shock; anuria; O. Post.	Asphyxia	Long neglected.
Tuberculosis	Prematurity.	Induced miscarriage.
Syphilis.	Syphilis.	The last five children born dead, or dying shortly after birth.
"	"	Miscarried with every child.
Some conjugate contraction.	Cerebral compression.	
Anasarca; albuminuria.	Prematurity.	
Syphilis.	Syphilis.	
None	Prematurity	} Twins.
"	"	
Placenta previa.	"	
Uterine fibroid in posterior wall.	"	
Placenta at edge of internal os.	"	
Head impacted; uterine inertia.	Asphyxia.	
Pelvis justo-minor; very large child.	Cerebral compression.	
Justo-minor pelvis; large child.	"	
Ante-partum sepsis	?	Mother died of puerperal thrombosis and embolism.
Tight cervix.	Asphyxia	
Child's head much over size	Cerebral compression.	

seems to me an advantage. Rhythmic traction of the tongue by an assistant seems to be an additional help. Swinging the child by the heels I have seen excite respiratory movements when other methods failed, probably by virtue of sending more blood to the base of the brain. One child I resuscitated after one hour's work, but it died twenty-four hours later.

I must mention the great benefit I have several times seen from the prolonged use of iodide of potassium, singly or with mercury, in cases of repeated miscarriages or the births of

dead children at term, traceable directly or indirectly to syphilis, *and in cases where this dyscrasia could not be made out.* It seems quite evident that these drugs, aside from their specific effects, are potent for good in certain local as well as general conditions which are inimical to the healthy growth of the fetus or child.

This large infant mortality shows in a striking way that when inimical factors produce excessive complications in labor with a large maternal mortality, the infant mortality is increased almost in a geometrical ratio.

In a well-regulated maternity hospital this mortality could have been much diminished, undoubtedly, just as the maternal mortality could have been reduced.

The Maternal Mortality (page 385).—There were 4 deaths among the 404 whites, and 8 deaths among the 96 colored. Of the 4 fatal cases among the whites, 1 was from eclampsia—the only white case lost from that disease—2 were from puerperal septicemia, and 1 from puerperal thrombosis and embolism.

Among the colored there were 4 deaths from eclampsia, 1 from placenta previa, and 3 from septicemia, all neglected cases. The details of some of these cases may prove instructive.

The 4 deaths from eclampsia may be described in a few words. In all of them I was called after much precious time had been lost and after many convulsions; they were all in deep coma and never regained consciousness after delivery. When the nerve centres become so thoroughly saturated with the poison nothing avails. Each convulsion leaves less vitality to withstand a poison locked up in the system by inoperative emunctories.

The death from placenta previa was another typical example of neglect—a woman long in labor, with a partially detached placenta, exsanguined and in collapse.

One of the cases of septicemia I have already described—a woman, moribund, with a decomposed child half-delivered. There can be no worse picture than this.

Another with a contracted conjugate was practically moribund when seen. I can blame myself, however, for attempting forceps, or the subsequent version which successfully delivered the child. The only proper treatment was immediate craniotomy. At the time I was without the proper instruments, some distance from home, and immediate action seemed imperative. The patient had been saved in the preceding labor by an early craniotomy.

MATERNAL MORTALITY.

No.	Race.	Age.	Para.	Time.	Mode of delivery.	Complications.	Puerperium.	Child.	Cause of death.	Remarks.
1	Col.	18	I.	Term.	Forceps ..	Puerperal eclampsia.	Death in four hours	Dead.	Toxemia .	A neglected case.
2	Col.	30	V.	Eighth month.	Forceps failed. Version.	Puerperal eclampsia.	Death in half-hour.	Dead.	Toxemia .	A neglected case.
3	Col.	31	IV.	Eighth month.	Forceps ..	Puerperal eclampsia.	Death on third day after fever and convulsions.	Dead.	Toxemia .	A neglected case.
4	Col.	16	I.	Term.	Delivered by traction; the decomposed head protruding through vulva.	Neglect...	Death in twenty-four hours.	Dead.	Exhaustion; septicemia.	In hard labor 3 days.
5	Col.	30	VII.	.....	Forceps ..	Placenta previa.	Death in twenty hours.	Dead.	Hemorrhage and exhaustion.	Neglect.
6	Col.	18	I.	Term.	Forceps ..	Puerperal eclampsia.	Death in sixteen hours.	Living.	Toxemia .	Neglect.
7	W.	40	XII.	"	Unaided..	Puerperal eclampsia.	Death in sixteen hours.	Living.	Toxemia .	Fou-droyant type.
8	W.	..	VI.	"	Unaided; easy.	None	Death on twenty-first day.	Living.	Septicemia; shock.	Shock caused by intrauterine douche
9	Col.	23	III.	"	Forceps failed. Version.	Contracted conjugate.	Death in thirty-six hours.	Dead.	Peritonitis; shock	Neglect.
10	Col.	27	I.	"	Forceps ..	Occiput posterior.	Death in eighteen hours. Shock, anemia.	Dead.	Septicemia; shock.	Neglect.
11	W.	33	VI.	"	Unaided..	None	Death on sixteenth day.	Living.	Septicemia.	
12	W.	45	IX.	"	Forceps ..	None	Ante-partum sepsis; fever for five days	Dead.	Puerperal thrombosis and embolism	Neglect.

The remaining case of septicemia occurred in a mulattress, æt. 27, of a very delicate constitution. There was uterine inertia, anuria, and collapse; though delivered occiput posterior, the extraction was very easy and without tear. There was no rally after the delivery.

To return to the deaths among the whites. The one death from eclampsia occurred in a large, vigorous woman of 40, in her twelfth pregnancy. I delivered her at midnight and left her well satisfied with her condition. I did not see her till 12 o'clock the next day, when I found her in convulsions and unconscious. The one remedy for this case would have been heroic bleeding, but I was not convinced at that time of the value of this treatment, and so she failed to get the one thing needful.

A death from septicemia, Case No. 8 in the table, is one of peculiar interest, and I published it in the *New York Medical Times* for December, 1890. A woman, æt. 31, in her sixth pregnancy, was delivered without any difficulty, and, as far as I was aware, under strict antiseptic conditions. She had a trained nurse in constant attendance. On the third day the temperature was 101° , with that quick pulse which always causes or should cause anxiety. There was no odor to the lochia and the other symptoms seemed good. On the seventh day the nurse noticed some odor to the lochia for the first time. I at once introduced my finger into the uterus and brought away a piece of retained placenta the size of a hickory-nut. The uterus was otherwise empty. I immediately washed out the uterus with a hot carbolized douche. This was followed at once by a severe chill and a rise of temperature ($102\frac{3}{4}^{\circ}$). The next day, still finding some odor, I again used the douche, which was again followed by a violent chill and a rise of fever to $104\frac{3}{4}^{\circ}$. On the decline of the fever the patient passed into a condition resembling the algid form of congestive malarial fever or cholera. After much stimulation the patient rallied, and the temperature kept but slightly above the normal, yet there was the rapid weak pulse and the bad facial expression. She died on the twenty-first day. Aside from the odor to the lochia, at no time very bad, there were no pelvic symptoms, no swelling, no pain. The poison seemed to have leaped the uterine barrier and begun its fatal work *in medias res*. I have always felt that the uterine douche killed the patient, though I gave it most carefully and with a perfect return flow. I have seen much the same symptoms follow washing out the bladder. In one other case since then I have seen a severe chill and high temperature follow the douche, and a case which passed into a typhoid state and came near ending fatally. Doléris has described this condition as a "stupeur abdominal."¹ Even in

¹ "Introduction à la Pratique Gynécologique," par J. A. Doléris et R. Pichevin, 1er fascicule, Paris, 1896, p. 153.

the non-puerperal curettage the douche is sometimes followed by severe chill and fever, as pointed out by W. Gill Wylie, though he does not seem to fear it. In the puerperal state, with the vitality depressed and nerve centres over-sensitive, how much more serious such a condition must be! In the simpler form of septicemia, where the microbic activity is held in check at the uterine barrier, the douche is indicated and accomplishes its purpose with slight or no shock; but when the poison has leaped its bounds, and the bad pulse and facial expression show the grave systemic infection, the douche can do no good, but may, through shock, hasten the fatal issue and take away the little chance for recovery which may yet remain.

From curettage alone and swabbing out the uterus I have never seen bad results. It is the stream of water which seems to be so dangerous. And our guide, and only guide, is not the temperature but the pulse. I have seen neglected cases where the uterine cavity showed advanced sepsis, but with the pulse and general condition good. The vital forces have been sufficient to keep the sepsis local. Here with curettage alone we get often brilliant results. But let the barricade give way and the uterus ceases to be the battleground, and we can do nothing outside of supporting the general vitality and the use of whatever feeble means we may possess to antagonize the poison in the blood. Judging from recent literature on the subject, our knowledge of "puerperal fever," or puerperal septicemia, seems to be gradually crystallizing into something definite. The difference between the local manifestation in the uterus with the other symptoms good, and the general blood poisoning with all the general symptoms bad and the local symptoms insignificant, seems to be the difference between the staphylococcus and the streptococcus.

Dolérís, in the work above quoted, has treated this subject in a masterly manner. Grandin and Jarman, in their excellent work on "Practical Obstetrics," have well epitomized our knowledge on this subject. I feel I can indorse every word in their chapter on the "Pathological Puerperium." The student who learns the lesson there taught will be well prepared, so far as the present means at our disposal go, to meet this complication in his practice.

The next fatal case of septicemia, No. 11 in my table, is also interesting and instructive:

Mrs. Y., æt. 33, in her sixth pregnancy. The child was born as I entered the room. I delivered the placenta without touching the genitals. Fever appeared on the third day, and grave

symptoms of general infection rapidly developed. There were apparently no pelvic symptoms; uterus well contracted, no pain, and slight, if any, odor to the lochia. I refrained from any local treatment and directed all my attention to the support of the general system. The patient died on the tenth day. In studying this case I made every effort to discover the source of the infection, and I offer the following solution as the most probable explanation of the case: Her husband, shortly before his wife's confinement, stuck the point of a pair of scissors into his eye, causing a prolapse of the iris. Panophthalmitis rapidly developed, necessitating the removal of the eye. In giving him the anesthetic I noticed a very foul odor from his mouth, and found an extensive ulceration of the gums with many decayed teeth. A fouler mouth I have never seen, and yet this man was sleeping in the same bed with his wife up to the time of her confinement, and with no regard to antisepsis.

Dr. Roderick Maclaren, in his address on "Preventive Surgery" before the British Association in June, 1896, spoke especially of the care of the teeth. He had known deaths from septicemia or putrid thrombosis originating in a dead tooth root. This seems to tally well with my own case. Surely it behooves the obstetrician to look to the husband as well as to the wife. In the lying-in hospital a case of carious or necrosed bone would not be allowed alongside the parturient woman.

My last case, one of puerperal thrombosis and embolism, so far as such a diagnosis can be made without a post-mortem, carries its lesson with it.

I was called to a woman, æt. 45, in her ninth pregnancy. Found her in a violent chill, with high fever, the child dead, the waters highly colored by meconium, a dirty officious midwife in attendance, child O. L. A., cervix well dilated. Chloroform, and an easy forceps extraction. Uterus thoroughly washed out with a gallon of hot corrosive sublimate solution 1:4000. Fever gone by the sixth day and the patient thoroughly convalescent. On the tenth day, feeling well, she ate a good breakfast, got up and dressed, and suddenly fell dead. I had ordered her to remain in bed two weeks, as I do all complicated cases.

Some Concluding Thoughts.—There are certain physicians who will tell you they never have a ruptured perineum. They are either too careless to examine the perineum after labor or their assertion here is as unreliable as it is in other matters. There are cases where the perineum will tear in spite of every

effort to save it, unless the tear is switched off by an episiotomy. With all the literature on the subject and all the various methods extolled, we have but three measures at our disposal: to keep the head flexed by firm pressure, to allow only a gradual stretching of the parts by a slow and even passage of the head, and, where the laceration seems inevitable, to do an episiotomy. Not infrequently a perineum which permits the passage of the head will be torn by the shoulders, and therefore these parts must be watched as well. Even if torn, a thoroughly clean torn surface united by deep wide stitches will, in a very large majority of the cases, give a complete union if attended to at once or within twenty-four hours. I have had a perfect union follow a stitching on the fifth day, the parts being freshened by sponging and a light scraping with a curette.

With all the complications which have come to me, I have been spared a severe post-partum hemorrhage. In one case only was there a hemorrhage sufficient to cause some solicitude. The pulse is here again our best guide, for, other things being equal, as the heart is so is the uterus.

Firm pressure will control the situation in most cases. I have seen a physician stick a dirty electrode of a small faradic battery, fished out of a dirtier bag, up into the uterus to control some hemorrhage from a torn cervix, when I should have relied upon pressure alone, and still believing firmly in the efficacy of the faradic current to contract the uterus.

Ostrom has called attention to the efficacy of strong traction on the uterus to control hemorrhage in operations on the uterus and adnexa per vaginam, and it looks reasonable that the same procedure would be efficacious in post-partum hemorrhage. A couple of volsellæ to drag down the uterus, with compression from above, may control some cases, facilitating also the inspection and control of a lacerated cervix.

I have frequently been reminded of a possible law of periodicity in confinements. Is it not possible that every woman has a certain critical time which most favors conception and delivery, but which is kept from asserting itself by the many heterogeneous factors entering into the modern life, now so far removed from the natural state? For example, how often it happens that the children in a large family have birthdays close together, in three adjoining months, say, or even in the same month! Several times I have met with two children in the one family with the same birthday. Several times I have delivered women on their own birthdays. This periodicity is very

apparent among plants and the lower animals. I attend a family where there are four children. The first three were born on the same day, and *nearly the same hour*, two years apart, while the fourth child missed it by a month only. This seems to be more than a coincidence, the poorest of all explanations.

The following case seems just as remarkable: Mrs. C. became engaged on December 13th, and was married on the same date one year later; her first child was born on December 13th following; this child died on the following December 13th; she subsequently miscarried on December 13th; a second child was born on December 13th, and this child, apparently to hold up the record, was very ill on the same date and came near dying.

The thought comes to me that a careful analysis of a very large number of cases, recording the dates of births of parents and grandparents and children, might point to a relationship, to a personal equation, which might aid us in predicting future confinements.

It must be admitted that a carefully selected diet is a vitally important measure in pregnancy, capable of preventing or lessening many of its complications. How quickly does the albuminuria of pregnancy, when discovered early, yield to the milk diet! The avoidance of much meat and highly organized albumens must remove a large burden from the liver, with a reduction of the effete products thrown into the blood, thus relieving all the emunctories. The simpler food of the lower classes must explain, to a certain extent, their easier pregnancy and parturition. I am strongly of the opinion that diet has an influence upon the size of the child as well as upon the character of the labor.

With the many dangers threatening the modern woman, and especially the modern woman under the influences of the artificial life of to-day—influences inimical to childbearing—the question of a judicious induction of premature labor becomes more and more a serious consideration with the physician. If this modern life tends to more trouble in pregnancy and labor, our methods of relief have kept step with the demand. This measure seems to me to have a future before it. During the last year I have had five or six cases, perhaps, where the child could have been saved, let alone the peril to the mother from a difficult labor, by the induction of labor at eight months. I have just brought through such a case. Through careful

antiseptis the induction of labor is quite without danger. Advancing civilization, with greater cerebral development and larger cranial capacity, must tend toward a larger head in the new-born, with increasing difficulty in delivery. The induction of premature labor may thus become more and more a conservative measure and a necessity.

I have had several cases where after-pains began some days before labor, paradoxical as it may seem. I make a distinction between the preliminary pains of labor proper and certain pains in every way identical with the so-called after-pains, and unattended by those symptoms which indicate the softening and dilatation of the cervix and the uterine expulsive effort. These cases were multiparæ suffering later from severe after-pains. In one case they were so marked and so distressing that I brought on labor proper by the introduction into the uterus of a thoroughly aseptic loaded bougie, the procedure I always employ in the induction of premature labor. For more than a week the patient had been suffering severely from these pains and without any other evidence of labor. The interference seems to me to be justifiable.

I believe that the inciting cause of natural labor at term is the beginning retrograde process set up in the muscular uterine tissue. It is quite reasonable to suppose that this uterine *débâcle* may have progressed some time before regular labor is started, and that bona-fide after-pains may be before-pains.

For nine months the uterus has been building up this muscular wall, which, at the appointed time, begins to break down, and which takes but a month or six weeks to be entirely swept away. How great must be the katabolism and circulation necessary to accomplish this result! The beginning of labor proper must be the crest of the wave just as it starts to break. With the primiparous uterus this change is more gradual, while in the multiparous uterus, other things being equal, this involution is more rapid with consequent greater reaction. May this not explain the increasing after-pains which come with succeeding labors? And, further, is it not possible that this katabolic process may fail to start at once regular labor pains, and that the patient may be harassed some time before the uterus takes the decisive step?

I wish to testify to the almost specific effect of gelsemium upon these pains.

In conclusion, I hope that the many complications and the several rare cases among these 500 labors warrant this some-

what lengthy paper. In comparison with other reports of series of obstetrical cases I seem to have been pursued by a Nemesis which has thrust upon me a series of cases suitable for an obstetrical Botany Bay, a limbo for the parturient rag-tag and bob-tail.

11 JONES STREET, EAST.

CESAREAN SECTION.

PERFORMED UNDER THE ADVICE OF

H. H. POWELL, M.D.,

BY

DUDLEY P. ALLEN, M.D.,

Professors respectively of Obstetrics and Surgery in the Medical Department of Western Reserve University, Cleveland, Ohio.

IN December, 1896, I was consulted by Dr. A. L. Cope, of Winona, Ohio, in regard to a case in which Cesarean section was desired by the patient. Without examination I referred the case to Dr. H. H. Powell, who made the following report: "Dr. Cope stated that on September 8th, 1889, he attended Mrs. W. R. in her first confinement, which occurred at term. The vertex presented; the membranes ruptured early; the os was rigid and remained so after the head descended into the cavity of the pelvis. Hard labor continued throughout the night of the 8th. Numerous efforts were made to effect delivery with Hodge's forceps, but failed, the instrument slipping frequently. Craniotomy was decided upon, and, in the absence of more suitable instruments, perforation was performed with a large scalpel, and a 9½-pound child delivered with the forceps, tearing the cervix badly and completely lacerating the perineum. On account of the patient's condition primary operation for repair of the lacerations was not performed. Recovery was very slow. For some days the temperature ranged as high as 105°. In October, 1892, Mrs. R. again became pregnant, and on May 19th, 1893, Dr. Cope, in consultation with Dr. James Anderson, of Salem, Ohio, induced labor at the end of the seventh month, the labor lasting thirty-six hours. With the aid of forceps a dead child was delivered; weight, 6 pounds. Recovery was slow.

"About May 10th, 1896, Mrs. R. became pregnant a third time. Both she and her husband were extremely anxious for a

living child. The following are my notes of the case: Mrs. R., age 29 years; height, 5 feet $2\frac{1}{2}$ inches; weight, 120 pounds. She believed that her gestation had reached the close of the thirtieth week. Pelvic measurements: Iliac spines, 22.5 centimetres; iliac crests, 25 centimetres; external conjugate, 18 centimetres; between the trochanters, 28 centimetres; circumference of pelvis, 83 centimetres; diagonal conjugate, 11 centimetres; true conjugate (estimated), 9.5 centimetres. All the pelvic measurements were slightly below the average. Pelvic arch somewhat acute; perineum ruptured through the sphincter ani, involving the recto-vaginal septum for about half an inch. Digital examination revealed a head presentation. The cervix gave evidence of severe past injury; a rigid scar mass extended from the right side of the cervix into the cervical segment of the uterus. The condition of the soft parts seemed to threaten danger to the mother and child more than the slightly contracted pelvis. I believe the craniotomy at the first confinement was necessitated by an occipito-posterior position of the head, which failed to rotate; this occurring in a primipara with rigid perineum and a pubic arch somewhat acute, with the child weighing $9\frac{1}{2}$ pounds, would offer grave difficulties. The injuries inflicted on the soft parts, and the frequent slipping of the forceps, although the head was well in the pelvic cavity, are best explained by this hypothesis.

“In view of this history and the conditions found, I informed Dr. Allen, and wrote the husband of Mrs. R., that in my opinion it would be possible to deliver her of a live child at the end of the thirty-fifth week by the induction of labor, without danger to the mother; that Cesarean section at full term would offer better chances for the child, but would increase the danger to the mother.”

Late in December I was informed by Dr. Powell that a Cesarean section had been decided upon, and that the patient would come to the hospital for operation two weeks in advance of the time when labor was expected.

On the evening of January 1st, while thirty miles from Cleveland, I received a telegram requesting me to come at once to the patient's home to operate, as labor had come on unexpectedly. By hard travelling I arrived at about 4:30 A.M. and found her general condition good. She was having frequent labor pains, but of small propulsive force. Abdominal and vaginal examination showed a fetal pulse averaging about 160 per minute, the child in the L. O. A. position, and the os dilated to the size of a twenty-five-cent piece, the cervix having almost

entirely disappeared. The os was tense, suggesting the presence of a large amount of cicatricial tissue. The membranes had ruptured on December 29th, presumably because the patient had helped during the day in hanging a picture. Labor pains had begun on Friday morning, three days after the discharge of what was supposed to be liquor amnii, and Dr. Cope was called on Friday afternoon. He immediately telegraphed for me. The light at our command was one lamp upon a high cupboard at one side of the room and two small lamps upon a shelf at the other. Ether was administered by Dr. Cope, and I was aided in the operation by my assistant, Dr. Nevison. Everything pertaining to the operation was sterilized by boiling.

An abdominal incision was made from just above the umbilicus to the pubes. Beginning with one end at the lower extremity of the uterus on one side, a strip of sterilized gauze, one yard wide and nearly a yard long, was carried over the fundus and down upon the other side to the lowest part of the abdomen, being pushed between the anterior abdominal wall and the uterus, so that when the abdominal walls were pressed against the uterus the gauze intervened and prevented the escape of blood into the abdominal cavity. An incision about five inches in length was made through the uterine wall. It came directly upon the centre of the placenta, necessitating the tearing loose of the latter. As soon as this could be done the child was removed and with it the whole placenta. The child was deeply cyanosed and the thorax completely collapsed. The abdominal wound was left in the hands of Dr. Nevison, who compressed the uterus. This contracted normally, and although the flow of blood after the incision through the placenta had been enormous, it ceased when the child and placenta were removed. I attempted to resuscitate the child by artificial respiration, but without success, and then tried hot and cold water, alternately applied; after this I had recourse to the Schultze method, which was unsuccessful, as was also an attempt at insufflation. Returning again to the Schultze method, respiration gradually became established, although probably not for eight or ten minutes. The child was hastily enveloped in a blanket and the uterus and abdomen closed. A deep layer of fine catgut sutures was used to unite the muscular tissue. This line of sutures penetrated neither the peritoneum nor mucosa, being placed strictly within the uterine wall. A second line of catgut sutures was inserted, penetrating the peritoneal surface and about half the thickness of the

muscular wall, drawing the margins of incision into close approximation. A line of silk sutures throughout the entire line of the incision united the peritoneum outside of the catgut sutures. The continued suture was used in all three instances. Upon the removal of the gauze which had been placed around the uterus the abdomen was found to contain almost no blood. A single small clot adhered to the gauze. The abdominal wound was closed by interrupted sutures of silkworm gut and the patient was placed in bed with a pulse of 120. Aside from a slight suppuration of a few of the superficial stitches, the subsequent history of the case has been normal in every respect. At the period of the writing of this paper, January 25th, both mother and child are well.

I have reported this case because of the interesting question involved in its management. Although the chances of a premature delivery were placed before the family, and they were told that the child might be successfully delivered at term, they decided positively upon Cesarean section on account of their previous loss of two children and their great desire for an heir. The difficulties of successful operation were not inconsiderable. Labor had been in progress for many hours, the operation had to be performed with limited assistance and very poor light, and the arrangements for operation were such as could be made after our arrival.

In the operation no ligature was used to control bleeding from the uterus. The placenta showed that the incision through the uterus had been almost directly through its central portion, and the necessity of tearing off most of the placenta before the child could be reached doubtless accounts for its deep asphyxiation. Careful investigation shows the period of gestation to have been exactly thirty-six weeks.

The method of placing a strip of absorbent gauze about the uterus to prevent the escape of blood into the abdominal cavity is, I think, worthy of adoption. I have never seen a laparotomy of the simplest kind in which less blood escaped into the abdominal cavity. I believe that the method of employing catgut in the sutures which are buried in the muscular wall close to the uterine cavity has the advantage that should any infection take place from the uterus there is less danger of prolonged difficulty than if silk be employed. The catgut sutures produce as good coaptation as silk, and the use of silk for the peritoneal sutures insures the holding together of the incision until cicatrization has taken place.

RÉSUMÉ OF THE GYNECOLOGICAL WORK DONE AT THE LONDON ASYLUM. ¹

BY

A. T. HOBBS, M.D.,
Assistant Physician to Insane Asylum,
London, Ont.

THE advent of the year 1895 witnessed the introduction of gynecological work in the treatment of insane women in this institution. Since that time the work has steadily progressed along modern lines, and the inauguration of thorough asepsis has made practicable and possible almost any departure into every branch of surgery with a reasonable degree of immunity to the patient. No section of surgery has made more rapid strides toward perfection than that pertaining to the amelioration of the condition of women suffering from pelvic diseases throughout the civilized world. Where rational medicine is practised, women, in increasing numbers, are constantly being restored to health by means of its agency. It is in the field to stay, and it is safe to predict that with the march of time, when other methods of treatment become obsolete, it will still maintain a foremost position. To sick and afflicted humanity the greatest boon, and one of inestimable value, is the restoration to health by natural forces aided by scientific remedies. As one of Nature's handmaidens, surgical gynecology stands pre-eminent in the treatment of the host of ailing women suffering from diseases peculiar to their sex. If it happens that pelvic disease is coincident with mental aberration, or, as it has so often proved, a factor in producing mental disorder, the removal of such disease not only promotes the physical well-being of the patients, but very often lessens the severity of the mania, leading to mental recovery.

Pathological lesions of the brain in insanity are comparatively rare. Serious disturbances of the functional integrity of the nerve centres are often brought about by disease in distant organs, reflexly or sympathetically. Derangements of the highly complex cycle of organs pertaining to those of reproduction in the female exercise considerable influence on her mental

¹ Read before the London (Ont.) Medical Association, February 8th, 1897.

stability. Witness the changes at the dawn of puberty, the varied phases coincident with maternity, and the mental decadence so often concurrent with the twilight of that period when utero-gestation is possible. It therefore seems of paramount importance that a woman's sexual apparatus should be in perfect order to insure her good health, not only physical, but mental as well. The increase of cerebro-nervous disorders among modern women bears a direct relationship to the increase of gynecological complaints. More Madden points out that of ten thousand women who passed through his hands during his eighteen years' experience in the Mater Misericordiæ Hospital of Dublin, thirty per cent gave evidence of nervous disorders varying from the most trivial to those of the greatest importance. Very little attention has hitherto been paid to the existence of pelvic disease among the insane. When you consider that these patients, with their clouded faculties, their delusional reasoning, their insane suspicion of everybody and everything, and their usual analgesic condition, or indifference to pain, would not be likely to make known their ailments or to draw attention to any pelvic disorder, is it to be wondered at that, as has actually been found, uterine diseases may often run unsuspectedly their course as long as existence endures?

During the two years we have been engaged in this work we have examined some seventy-one cases, nearly all under anesthesia; and of these, sixty-seven, or ninety-four per cent, had diseases of the sexual system needing treatment. This is a large percentage, but it is not intended to imply that such disease exists in this ratio among the two thousand insane female patients confined in our provincial institutions, but it certainly points to the presence of such lesions to a large extent among this class of the insane.

It would, therefore, seem incumbent on the profession at large that all women should receive a careful scrutiny on the advent of insanity, and, if any history of utero-ovarian symptoms is obtained, that a thorough gynecological examination should be urged; and, if disease is diagnosed, treatment, not only medical but surgical, be carried out without delay. If no disease of the generative system is found to exist, and you have questioned all the other functions of the body, or if the result of treatment of local disease has made no improvement in their mental condition, then you can, with a clear conscience, commit your patients to the care of institutions for the insane, that are provided for such cases.

The history of over two thousand female patients that have been or are residents of this institution points out the fact that the puerperium has been the exciting cause in at least ten per cent of all of these cases. A rigid pelvic examination should have been made in every one of this class when they were on the borderland of insanity, as, I venture to say, it would have been found that a very large percentage had disease or injury of the *via naturalis*, and many of them would have been restored to health by appropriate treatment at their homes.

Alienists in the past, and many psychologists of the present day, are slow to admit the presence of pelvic disease to any extent among the insane females committed to their care. Still harder is it to convince these specialists that many of the diseases have some etiological bearing on mental disorders. I cannot do better than quote the opinions of two of the greatest gynecologists in the world upon this point. More Madden, in his work on "Clinical Gynecology," page 482, says: "In the great majority of our lunatic asylums little if any special attention is given to utero-ovarian disease causing insanity. . . . Among the fifty thousand patients who are scattered among the various female lunatic asylums of the United Kingdom there are needlessly and improperly confined many women suffering from reflex cerebro-nervous disturbances consequent on periuterine irritation or disease. . . . A large number of these patients might be restored to mental as well as bodily health by appropriate treatment." Robert Barnes, in discussing a paper on a case of recovery, mentally and physically, succeeding operation, which was read before the British Gynecological Society at its last June meeting, said: "If the present case had got into an asylum I believe she would have remained there, for I think it is a great fault in the organization of our asylums that there is no provision for the examination of such cases. . . . Asylum doctors are among the most absolute of the profession, and once a woman comes under their care there is a considerable chance of her remaining. There is no reason why a woman in an asylum who is suffering from a uterine complaint should not have it attended to, whether or not it makes any difference to her mental condition."

These are somewhat severe criticisms, and may apply to many institutions for the treatment of the insane on this continent, but not to all, as Rohé, Manton, Kirkley, and other pioneers have for some time been endeavoring to bring about a reform in this direction.

Let it be clearly understood that the operations as outlined below were not performed with a view to curing the insanity of these patients. The fact of the woman being insane was not taken into account in determining the course of such treatment, but the fact that the physical health and future comfort of these patients demanded it; nevertheless in many cases it has been found that mental improvement and recovery speedily followed these surgical measures, and in cases in which, without such operative procedure, recovery or improvement seemed absolutely hopeless.

Up to the present time some sixty-one patients have been operated upon for pelvic disease, covering almost the whole range in the category of gynecology. The physical benefit has in most cases been marked, and very often the psychic disorders followed exactly the phases of the utero-ovarian symptoms, improving and disappearing as the latter improved and disappeared. For purposes of convenience in analyzing these cases I have grouped them under heads, the classification being guided by the principal operation done in each case, a number of patients having undergone two or more operations before the completion of the treatment.

Curettage and divulsion alone were done in some nine patients, with physical gain in all, and mental recovery in six, or sixty-six per cent. No improvement has yet been noted in the remaining three. These operations were done for subinvolution, endometritis, and the various symptoms following in their wake.

Operations for cystic, lacerated, or hypertrophied cervix were done in twenty-three patients (five more being done on cases coming under subsequent head). Schröder's amputation of the cervix uteri was the principal method followed in these cases. Of this number nine, or forty-one per cent, recovered, seven improved, and as yet the remainder show no sign of mental change.

Perineorrhaphy was the main operation in three patients, although it occupied a minor place in ten other surgical cases. There was no variation in the mental condition of any of these, except a slight improvement in one.

Hysterectomy for complete procidentia, epithelioma, sarcoma, or fibroid tumor was the method of procedure in eight patients, six being done by the vaginal route and two by the abdominal method. Two only, or twenty-five per cent, recovered mentally, one improved, two remained unchanged, and

three died. One of the deaths occurred months after from causes other than those for which the operation was performed ; a second died from hemorrhage induced by the forcible removal of some of the ligatures in the vagina, by the patient herself, during the second week subsequent to operation, she being 65 years of age at that time.

Alexander's operation and ventral fixation of the uterus were employed in nine cases, the uterus being freely movable, although retrodisplaced. All recovered physically from the operation, although one died six months after from disease entirely foreign to that for which she was operated on. The subsequent mental condition points to recovery of two, or twenty-two per cent, three improved very much, and the rest show no return to their normal mental status.

Celiotomy and removal of diseased uterine adnexa and ventral fixation of the uterus were performed on two patients, one of whom recovered her reason.

Celiotomy and removal of diseased ovaries and tubes were done in six patients. In a half, or fifty per cent, of these the mental condition was brought up to par, two others showed considerable improvement, and one died during the second week, of pneumonia, being quite old at the time of removal of a large, growing ovarian cyst.

Tubercular disease of ovaries and tubes was found by exploratory laparotomy in another case. The parts were so matted down in the cul-de-sac and adherent to the intestines that further operation was deemed inadvisable, as life would probably pay the forfeit.

The after-treatment of many of these patients was very trying. Excitable periods and uncontrollable restlessness, inherent to the insane, made indispensable constant watchfulness and close attention of skilled and trustworthy nurses. Removal of dressings, the handling of wounds, the inability to indicate natural wants, and the desire to get out of bed were some of the difficulties attendant on operation.

A summary of these sixty-one cases points to twenty-three, or thirty-eight per cent, mental recoveries ; fourteen, or twenty-three per cent, as having improved ; nineteen, or thirty-one per cent, remaining unimproved ; and five deaths, or about eight per cent. The previous mental condition of those patients who got well mentally covered most forms of mania and melancholia, eleven of them having been insane less than a year, six between one and two years, two between two and

three years, one between three and four years, one between four and five years, and two over five years. It is only fair to assume, from experience in past cases, that a number of those who were recently operated on and who are included in the above list, and whose mental status is as yet in the balance, will recover their faculties as time goes on, as some take months to arrive at the point where the mental stability is fairly assured.

In a former paper on this subject I said : " I wish, however, to draw your attention to the marked results which followed in these cases from work done upon the uterus itself." I desire to qualify this statement by saying that it is especially the case in many of the so-called minor operations for disease of this organ, such as rectifying conditions of subinvolution, the removal of hypertrophied cervixes, and the readjustment of displaced uteri, which not only sometimes, but invariably, produce a lessened degree of irritability, and very often promote return to a normal mental state. In my opinion these are the cases so often overlooked in pelvic examinations in some of the hospitals for insane women, and the absence of tumor, cystic or fibroid, or of graver complications, is usually regarded as sufficient warrant for non-interference when gynecic disease of the minor type is present, and this, I believe, accounts for the less satisfactory mental results obtained in those institutions where major disease is considered the main or only indication necessitating surgical relief.

Finally, the question presents itself : Of the sixty-one cases under discussion, how many would have recovered sanity under ordinary asylum treatment without operative measures ? Upon this point I shall have to ask you to accept my word only, and I am well aware that, in the position in which I am now placed, this may be fairly open to suspicion, without any doubt being necessarily thrown on my truthfulness, since all of us are led unconsciously to magnify the importance of our own work. I will say, however, that after the most careful consideration by the superintendent and myself, we are confident that, instead of twenty-three recoveries and fourteen improvements actually secured in these cases, we should not have had, at most, more than half a dozen of both recoveries and improvements, giving as a net result of our surgical work at least twenty recoveries and eleven cases improved, and this over and above the vast improvement in physical health obtained in nearly every one of the cases operated on.

In concluding this résumé of the work I must express my gratitude for the strong sympathy and active encouragement rendered by my superintendent, Dr. Bucke, and for the invaluable assistance I have received from our consulting gynecologist, Dr. Meek, without whose co-operation the work would probably never have obtained its present importance, and whose opinion was given as to the advisability of operation in every case. My sincere thanks are also due to Dr. Hugh A. Stevenson for his very efficient help in administering anesthetics whenever required, and to Drs. MacKay (Ingersoll), Moore, Eccles, Wishart, Ferguson, W. Stevenson, and my asylum colleagues, who have assisted me very materially.

IN MEMORIAM.

THOMAS SPENCER WELLS.

OF late years the name of Spencer Wells, which twenty years ago was a household word in the medical profession, has been but little heard. He had accomplished and completed his life's work, had done it well, and was resting on his hard-earned laurels. Knowing that he had long passed the allotted years of life, it was perhaps no surprise to those who knew and admired him to hear of his death, on February 1st, at Antibes, France, where he had gone to spend the winter; but a feeling of regret must necessarily be aroused by the news, for with him has passed away another of the landmarks which noted the birth of modern gynecology and the triumphs of abdominal surgery. For to Spencer Wells, as much as to any one man, is due the revival and popularization of ovariectomy.

Simpson, Duncan, Sims, Scanzoni, Atlee, Barker, Wells—all contributed to the advance of modern gynecology, and all have now passed away. But their works live after them!

Thomas Spencer Wells was born in 1818, was educated at Trinity College, Dublin, and in medicine at Leeds, Dublin, and St. Thomas' Hospital, London. After graduation in 1841 he entered the navy and saw active service during and after the Crimean war. On his return home he became interested in the question of the possibility of the safe removal of ovarian tumors, and performed his first ovariectomy (an incomplete operation) in December, 1857. In February, 1858, he repeated the attempt on the same patient and was successful. By the end of Novem-

ber, 1864, he had performed one hundred and fourteen ovariectomies, and the operation was then fairly legitimized and firmly established. Subsequently his ovariectomies ran into the thousands. After the first rational removal of an ovarian tumor by McDowell in 1809, and his subsequent thirteen operations, Nathan Smith, of Hanover, N. H., was the first to again attempt the feat, with success in 1821. For twenty years the operation again fell into disuse, until Clay in 1842 began to perform it, but even his successes failed to introduce the operation, and it remained for Spencer Wells to rescue it definitely from oblivion. The moral courage required to persist in his efforts may be inferred from the opinion expressed by the most influential medical review of the day that the operation was one which, "though it may excite the astonishment of the vulgar, calls neither for the knowledge of the anatomist nor the skill of the surgeon," and that "whenever an operation was performed so fearful in its nature, often so immediately fatal in its results, a fundamental principle of medical morality is outraged."

This was the universal sentiment in Great Britain and the Continent up to 1870 or thereabouts. In America the labors of Kimball, Burnham, and Washington L. Atlee had already succeeded in establishing in popular favor not only the operation of ovariectomy, but also that of abdominal hysterectomy for fibroids. But we are more progressive than our European brethren.

For many years Spencer Wells' operations at the Samaritan Hospital in London were one of the sights of the metropolis; at least, few physicians who visited London failed to avail themselves of the opportunity to inscribe their names in the visitors' book of that institution, and Spencer Wells' methods of operating, his ovariectomy instruments, and his views on the operation were considered authoritative the world over.

In time, of course, his ascendancy gave way before the energy, originality, and experience of hosts of younger surgeons, but his pioneer work in reviving ovariectomy can never be forgotten and entitles him to a high place among the great surgeons of the age.

His writings were not numerous, his chief works being "The Diseases of the Ovaries," two volumes, published in 1865, which passed through several editions and which will always remain a classical treatise on the subject, and "Ovarian and Uterine Tumors," 1882, one volume.

Soon after settling in London, Spencer Wells was made surgeon in ordinary to the royal household. He was president of

the College of Surgeons in 1882-83, and at the third centenary of the University of Leyden and the eighth centenary of the University of Bologna the honorary degree of M.D. was conferred upon him. In 1886 the American Gynecological Society elected him an Honorary Fellow. In 1893 he was created a baronet, having previously declined the compliment of knighthood.

In person Spencer Wells was of rather more than medium height, slightly portly; genial, modest, dignified, and unassuming in manner. In debate his utterances were clear, positive, and comprehensive, but never aggressive unless roused to self-defence by personal attacks upon himself or his professional career. In his practice he was inclined to be conservative as to doubtful radical operations; as an operator he was deliberate, careful, and thorough, never becoming excited or flurried. He was an excellent type of the true English gentleman, as well as of the able, conscientious, and honorable physician.

PAUL F. MUNDÉ.

EDITORIAL.

WE wish it distinctly understood that THE AMERICAN JOURNAL OF OBSTETRICS is, as it has always been, perfectly willing that the medical press should publish abstracts of original articles appearing in its columns, or should reprint such articles entire, provided that such extracts are duly credited to the JOURNAL, in which they first appeared.

We call attention to this fact because the editor of a certain publication has recently misrepresented the policy of THE AMERICAN JOURNAL OF OBSTETRICS and of the *Medical Record*. This has been done by means of a circular letter which has been sent to various journals of this country and of Canada, and which, most plausibly worded, endeavors to convince the profession that THE AMERICAN JOURNAL OF OBSTETRICS and *Medical Record* are opposed to the dissemination of medical knowledge. That the author of the circular letter has succeeded in conveying such an idea to at least a small part of the medical world has been shown by the tone of various editorials which have appeared in some of those journals which have published his communication.

For this reason we feel it incumbent upon us to reaffirm what we believe to be fully understood by the majority of the profession—our entire willingness that all reputable publications

should avail themselves of articles originally contributed to THE AMERICAN JOURNAL OF OBSTETRICS.

The refusal of the publishers of this JOURNAL to allow the writer of the circular letter to make use of abstracts from our columns in his own work was necessitated by business reasons of a strictly personal nature, and has been utilized by him as a means of furthering his private ends by attempting to cast discredit upon others.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, December 17th, 1896.

B. C. HIRST, M.D., *in the Chair.*

By invitation of the Executive Committee, DR. ALEXANDER J. C. SKENE, of Brooklyn, read a paper entitled

NOTES ON THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE FEMALE URINARY ORGANS.¹

DR. J. M. BALDY.—There were several points in Dr. Skene's paper that struck me as of rather unusual interest. The first one I would note is the general tenor of his remarks in the early part of his paper, in that very little good practically resulted from the use of the cystoscope. That substantiates to a large extent my experience in the last two years. It seems hardly possible for one to look far in this direction without coming to this conclusion. As far as diagnosis is concerned, it has primarily resulted in good, and clearing up to a great extent pathological conditions in certain directions has made us now perfectly able to take care of them by ordinary diagnostic means and methods.

The objections of Dr. Skene to the use of the cystoscope as employed by Dr. Kelly and others seem to me to be that of the dilatation alone. My own experience in this direction has been somewhat different; I should take it that the dilatation of the urethra incident to the examination is the most valuable element in the treatment or in the use of the instrument. I have seen a large number of obscure bladder and urethral troubles cleared up after nothing but such dilatation. I recall a case, a woman from the central part of Pennsylvania, who had been bed-ridden for months. She was put under ether, examination made, and of course dilatation was necessary to the use of the cystoscope; both ureters were catheterized, and it was determined that she had no disease of the ureters themselves or of the kidneys; the bladder was inflamed in patches and about

¹ See original article, p. 321.

the mouths of the ureters. The patient returned to bed, and nothing was done in the way of treatment until the urine could be examined. By the time this examination was completed she was cured; at the end of a week she left her bed and went home, and now, three years later, she has been well ever since. That is an extreme case of a very large group who have passed through my hands; almost all have been relieved, if not made well, by the examination. This brings us to the question of therapeutics—that is, the returning to the simplicity of older methods of treatment and avoiding strong caustics and applications. Large quantities of water may be used with advantage, it being diuretic; this is practically the only treatment I have used in these cases. Outside of these points I have seen no use whatever in the employment of the cystoscope, barring, of course, those few cases in which operative procedure would be necessary; here it is of undoubted value, and I believe that even here Dr. Skene will agree that certain manipulations are possible only in the hands of an expert. With reference to injuring the ureter, upon which subject Dr. Skene asked for some discussion, I know of but one case in which the ureter has been shifted into the bladder from the vagina after an injury. I cannot recall the surgeon who performed the operation, but remember seeing the report of the case. The reporter referred to the fact that he had failed in several other attempts. Replacing the ureter by opening the abdomen and cutting down upon it would be easy in some cases, and in others, as demonstrated by Dr. Kelly's failure, would probably be found impossible, the difficulties arising entirely from inflammatory complications. If the ureter can be traced down to a point so low that after cutting it off we can bring it into the bladder, the operation would be easy; if it were found embedded in inflammatory masses so high up that after it had been cut off it could not be made to reach the bladder, the operation would be impossible.

DR. C. P. NOBLE.—I have listened to Dr. Skene's paper with a great deal of interest, particularly the part which is new—the treatment of bladder tumors with the cautery instead of caustics. That certainly appeals to us as a most excellent innovation. With reference to the use of the cystoscope, I find that it is not necessary to use extensive dilatation. I think that the smaller sizes of the cystoscope give us all the information which it is necessary to have. No. 10 size is hardly larger than the ordinary catheter; I use it constantly, with only a trifling application of cocaine after the use of the little dilator which comes with the set. In these cases there is no occasion whatever for anesthesia, unless we have a patient who is so intractable as to require it on account of her temperament rather than of the examination. I feel, like Dr. Skene, that it would be unfortunate to make use of extensive dilatation, because I have seen a number of cases in which incontinence of urine followed this practice in the hands of others. I have never dilated above sixteen millimetres and do not intend to do so. For example, I think the cystoscope No. 10 or 12 is not so large an instru-

ment as the one exhibited by Dr. Skene with the catheter through it, so that the amount of dilatation necessary would be even less than by the introduction of that instrument. I find myself in entire accord with Dr. Skene as to the greater efficacy of mild measures in the treatment of ordinary cystitis cases, and as against the use of the stronger caustics. One use which I find for nitrate of silver in strength is for the treatment of ulcers at the neck of the bladder. It is quite possible that the cautery is a better method of treating these. By using the cystoscope and isolating the ulcer we can touch it with the silver solution and wash it off with water after application has been made. I have succeeded in curing a number of cases of ulcers at the neck of the bladder causing very obstinate so-called symptoms of cystitis—that is, extreme irritability of the bladder. The operations for cystocele in ordinary use have given very satisfactory results in my experience. The percentage of relapses has been very small. I think the chief thing, after doing the operation to narrow the anterior vaginal wall and reduce the cystocele, is to put in a good pelvic floor. I am quite sure the reason why the older operations failed was because a good perineum was not built up. So far as treating the injuries of ureters is concerned, I have had a very small experience and am happy that this is the case. In my own work I have cut away only one ureter. In that case this was done so high up that there was no opportunity to make an anastomosis. It was a case I operated on for extrauterine pregnancy. The patient was very ill at the time from hemorrhage. She had the gestation complicating an old intraligamentous tumor, so anatomical conditions were very much mixed. The entire ureter was embedded in blood clots. As this was discovered at a time when the patient was nearly in a state of collapse, the only thing feasible was to make a fistula by stitching the ureter into the abdominal wound. Later I took out the kidney. I was present at one operation where a ureter was injured, but the kidney was atrophic. No urine ran out of the ureter, and it was consequently not necessary to do anything to it. There was cancer of the broad ligament on that side, and pressure of the cancer had brought about atrophy of the kidney. In one other case I wounded the ureter and stitched it. I am interested to hear from Dr. Skene that his experience shows the large number of injuries to the ureter and bladder occurring in recent vaginal work. I have known of several cases myself. I recently closed a vesical fistula after an operation done in Germany which left a fistula. I succeeded in curing this after the failure of four previous operations done by three operators.

DR. HOWARD A. KELLY.—I look upon the cystoscopic work on the bladder as absolutely necessary in the diagnosis and treatment of urinary diseases in women; it is just as important as the examination of the throat before prescribing for throat diseases. With a little practice the examination may be made with great facility; it is necessary to emphasize this fact

in order that both specialists and the profession at large may realize that we now have a simple, direct means of investigating these cases.

Especially must an examination be made in all cases where the symptoms are either aggravated or persistent; oftentimes the diagnosis is cleared up at once by this means, and a simple treatment instituted which relieves symptoms which have gone on for months or years without alleviation. I have had several illustrative cases of this kind before me within forty-eight hours. To-day a woman came to me who has for months been passing large quantities of blood in her urine; she was very pale and emaciated and was suffering a great deal. It was impossible, from the symptoms, to say where the blood came from, but under direct introduction of a No. 8 cystoscope, a good reflected light, and the patient in knee-chest position (which in nineteen cases out of twenty is the best position), a vesical ulcer was found in the trigonum. I have now had three or four cases of vesical ulcer giving rise to persistent hemorrhage, and in every case the ulcer was discovered only by means of the cystoscope. A direct local treatment then relieves the disorder. One of the lesions most frequently found is hyperemia of the trigonum and trigonitis. In cases suffering a great deal from constant vesical tenesmus you will often find an intense hyperemia in front of and between both urethral orifices, generally neatly defined by the triangle of the trigonum. I saw a case at half-past 8 last night which was an exceedingly satisfactory one from the standpoint of direct inspection and methods of treatment naturally suggested by direct inspection. A girl, a patient of Dr. Norment, was brought to my office by him some six months ago suffering from intense pain and constant pyuria, with great exacerbations of pain and increased discharge of pus. In seeking the diagnosis I ran a renal catheter up the right ureter and struck an accumulation of pus in the pelvis of the kidney and the upper part of ureter, which I emptied; I did nothing more, and she did not come back until yesterday. After my first examination her symptoms began to change entirely; she passed no more pus, and instead of weighing ninety-six pounds, as then, she now weighs one hundred and fifty pounds. She now has an occasional attack of pain with the discharge of large quantities of water, which shows that the pyonephrosis has been altered to an intermittent hydronephrosis.

We thus have a very large and important field opened up for investigation, and we are only on the borderland of the whole subject. A long series of vesical and ureteral affections must be studied and described by the new means now under our control; even cystitis, which we have been accustomed to look upon as only one disease, resolves itself into a number, all having their own characteristics. We have thus opened up before us perfect diagnostic and remedial avenues extending their influence even as far as the kidneys. Nothing is more important for the gynecologist than to lay hold of this field, because it is in the direct line of his work and in the natural order of progress.

DR. A. J. C. SKENE.—When Dr. Shober invited me to address you he suggested that you would be pleased to have me take up this subject. Conscious of the fact that I have not been giving special attention to the subject of late years, I felt that I might do better with something else; though if I chose some other subject I might fail altogether, whereas if I was guided by him it would perhaps be more satisfactory. On my arrival he intimated that Dr. Kelly would be present, and then I felt that after all I had chosen the wrong track, as Dr. Kelly is first among the foremost in this field. Though I value Dr. Baldy's opinion most highly, I cannot agree with him entirely regarding extensive and rapid dilatation of the urethra. I have never seen benefit derived from dilatation of the urethra except in two conditions: one is hysteria or nervous irritability of the bladder, and the other, fissure about the neck of the bladder. The hysteria cases might be cured, temporarily at least, by dilatation of the urethra. I do not think this justifies the practice, however, as simpler and safer treatment does as well or better. Occasionally one may cure a case of fissure at the neck of the bladder, but not always, and if one fails the patient is made worse by the dilatation. In order to comprehend the different ways of examining the bladder, one must make a clear distinction between the endoscope and the cystoscope. I understand that Dr. Kelly's instrument is an endoscope, not a cystoscope, and that the cystoscope was in use for many years before Dr. Kelly devised and improved the use of the endoscope. That is one reason why I prefer the cystoscope. Notwithstanding the fact that I have a mortal dread of crossing swords with Dr. Kelly on this subject, I still believe that the easiest, simplest, and most accurate way of making a diagnosis of disease of the bladder, in the vast majority of cases, is with the cystoscope. Its use is less distressing and disturbing to the patient, and it reveals the true pathology more accurately than the endoscope. As to the question of catheterizing the ureters through Kelly's endoscope or with the aid of a cystoscope such as I have presented, I think that depends upon how one has been trained in this department. I am sure I can examine a patient, give less distress, and can catheterize ureters more easily with the cystoscope than through the endoscope. I believe that it will not be long until I shall use my last ligature. I have many times closed the abdomen, after removal of tubes and ovaries, without using a single ligature. I can also do a vaginal hysterectomy without using forceps or ligature. It is also most serviceable in some abdominal operations, when there is bleeding deep down in the pelvis, caused by separating adhesions. I was able to illustrate this the other day in bleeding from a little artery lying so close to the ureter that I could not stop it with a ligature, so I seized it and held it with the hemostatic forceps, and in thirty seconds it stopped completely. Much might be said regarding the remarks of Dr. Kelly, but for the present it will suffice to say that I heartily coincide with him.

JOHN B. SHOBER, M.D., *Clerk.*

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, June 5th, 1896.

The President, GEORGE BYRD HARRISON, M.D., in the Chair.

DR. I. S. STONE presented a

UTERUS AND THE ADNEXA REMOVED FOR SEPSIS,
also,
UTERUS REMOVED FOR FECAL FISTULA AND ABDOMINAL PAIN.

DR. J. W. BOVÉE said he would not remove the uterus for fecal fistula, but by anterior colpotomy would suture the fistula. He doubted the advisability of hysterectomy for abscess of the broad ligament.

DR. I. S. STONE said he did not remove the uterus in the majority of these cases, but in this instance the organ was necrotic, hence he removed it.

DR. J. WESLEY BOVÉE presented a

DERMOID CYST OF THE OVARY.

Mary L., 51 years old, colored ; Ipara ; admitted to Columbia Hospital August 5th, 1895, complaining of having a tumor in the abdomen, aching and stinging pain in the same region, and a sense of tightness across chest and abdomen ; is married and had one child during the war ; last menstruation three years ago ; noticed tumor one year ago ; at that time began to have pain in the pelvis, and great itching about the abdomen, and frequent micturition.

An examination revealed the abdomen to be distended above that of a full-term pregnancy, the cervix small and movable, and the fundus uteri not found ; the pelvis was blocked by a tumor, particularly in front ; the swelling is symmetrical and smooth, but tense, and the wave of fluctuation well demonstrated ; cardiac pulsation visible near epigastrium ; the venous pulse is very evident in the right side of neck ; circumference at the umbilicus, thirty-nine and a half inches ; distance from pubes to ensiform, eighteen inches.

August 10th, 1895, operation under ether ; it was severe and lasted ninety minutes. Every particle of the surface of the tumor was adherent densely, stubbornly resisting efforts at separation. A gallon of normal salt solution was thrown into the abdomen after the wound was nearly closed, and two quarts were thrown under the skin immediately ; she was put

to bed and progressed well. The bowels were moved in thirty-two hours and nourishment was retained. On the seventeenth day after operation the temperature of the atmosphere suddenly changed and she was attacked with bronchitis, which extended to the lungs by the next day, and on the twenty-first day she died. Autopsy showed the middle lobe of the right lung to be gangrenous and a purulent pleurisy to be present; the abdomen and pelvis were found to be normal. The growth was a dermoid cyst of the ovary and weighed eighteen pounds.

DR. SAMUEL S. ADAMS inquired if the pneumonia was not septic.

DR. BOVÉE said the disease developed eighteen days after the operation, and there was no evidence of sepsis.

DR. E. L. TOMPKINS read an essay entitled

CHOREA.¹

DR. GEORGE N. ACKER said the essayist had presented a very full account of chorea. Most of the cases as seen in hospitals were of the Sydenham variety. There was no known pathological lesion to account for the disease. He thought it was due to an unstable condition of the nervous system. If all the pains and aches that children had were classified as rheumatism, then rheumatism was an accompaniment of a large number of the cases of chorea. Otherwise it was not often present. Chorea follows certain infectious diseases, and in these heart lesions are apt to occur. We should be very guarded in giving a prognosis, as heart lesions may develop, and the disease was liable to recur. The muscles affected were the voluntary, those that were usually actively exercised.

THE PRESIDENT, DR. GEORGE BYRD HARRISON, said the frequency of relapses and recurrences and what Dr. Acker had said about rheumatism were true. Chorea was more frequent in females, while rheumatism was more common in males. The heart muscles themselves were sometimes affected. As to prognosis, when the disease affected a small area recovery was less likely to occur. Correction of errors of refraction and motility might relieve. There was no constant pathology. The treatment was symptomatic. Arsenic was the best remedy and was almost a specific. Chorea in pregnant women sometimes destroys the fetus in utero.

DR. SAMUEL S. ADAMS said chorea was due to a neurasthenic condition in which there was cerebral anemia with loss of proper function. Good hygienic surroundings, with the best possible food, afforded the most hopeful prognosis. The cardiac murmurs of chorea were not organic; they disappeared as the child improved. If all rheumatoid pains were classed as rheumatism, then rheumatic cases were numerous; but they were not true rheumatism. Prognosis was good if proper precautions were taken. If the patient is put in the hospital, usually

¹ See original article, p. 335.

he will be well in four weeks. Bromides were not of much use; antipyrin was not very reliable; arsenic, pushed to its physiological effect, was the best remedy. It should be held at the maximum dose for a time and then gradually reduced.

DR. HENRY B. DEALE asked Dr. Adams what was the nature of the cardiac murmur of chorea.

DR. ADAMS replied that it was anemic.

DR. W. SINCLAIR BOWEN said a patient of his, a young lady of 15 years, had chorea following typhoid fever. There was gradual loss of power on the right side, so that she could not write. She was so nervous that she would tear the bed-clothing unless prevented. She improved much under the use of arsenic.

DR. JOSEPH TABER JOHNSON said he had seen three cases of chorea occurring in pregnant women. All of these women miscarried, with the effect of immediate cessation of the choreic movements. The miscarriages occurred from the violence of the disease.

DR. J. WESLEY BOVÉE saw six cases of chorea in pregnant women in Columbia Hospital within five years. A building-up treatment improved all but two. The choreic movements ceased after delivery.

DR. GEORGE N. ACKER said the most of the cases he saw in private practice occurred in the springtime. He said he did not count the murmurs of anemia, but when they were organic they were, of course, serious.

Stated Meeting, Friday, June 19th, 1896.

The President, GEORGE BYRD HARRISON, M.D., in the Chair.

DR. I. S. STONE presented a specimen of

OVARIAN CYST WITH MUCOID DEGENERATION,
also a

DISTENDED APPENDIX.

DR. HENRY D. FRY presented a

DECIDUAL CAST OF THE UTERUS

from a case of ectopic pregnancy; also a specimen of

MALIGNANT DEGENERATION OF MYOMA.

DR. J. WESLEY BOVÉE presented a

CYST OF THE ROUND LIGAMENT.

DR. HENRY D. FRY asked Dr. Stone why he did not evacuate the cyst and thus require a smaller abdominal opening.

DR. I. S. STONE said he was anxious to preserve the specimen intact. The cyst was not adherent, and the incision was not much larger than ordinary.

DR. A. L. STAVELY (a visitor) said he found an interesting

condition on post-mortem examination in Dr. Fry's case of malignant degeneration of myoma. There were adhesions to the bowels and liver; the uterus contained two pints of pus; there was no involvement of the cervix. It was a case of adeno-carcinoma.

DR. J. WESLEY BOVÉE said this was an instance of a benign tumor undergoing malignant degeneration.

DR. HENRY D. FRY read an essay entitled

MANUAL RECTIFICATION OF FAULTY HEAD POSITIONS.¹

DR. WILLIAM P. CARR said the essayist had made an exhaustive statement of the case. He was much interested in the occipito-posterior position. In order to make an inclined plane he had used the vectis with good results. When the head is above the superior strait, before the waters are discharged, it is difficult to say what will be the position. The head may come around all right. In heart cases it was not desirable to give an anesthetic, and when the occiput is in the pelvis he would try the vectis.

DR. M. F. CUTHBERT asked Dr. Fry why he would use the right hand when the head was above the strait, and the left when it was in the pelvis.

DR. FRY replied that that was Baudelocque's method. To Dr. Carr he said the vectis was an obsolete instrument. He did not think any instrument compared with the aseptic hand.

DR. CARR said that no anesthesia was necessary in order to use the vectis.

DR. FRY said he preferred an anesthetic, and he gave ether in heart cases without hesitation. In cases of high location of the head, when it did not engage, rectification was recommended.

THE PRESIDENT, DR. GEORGE BYRD HARRISON, inquired if in cases of occipito-posterior position the pregnancy was prolonged.

DR. FRY said that he had not observed that it was, but in overdue cases the placenta was liable to become adherent.

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of September 17th, 1896.

CASE REPORTS.

DR. A. W. JOHNSTONE reported the following cases:

I have seen three cases of senile metritis in women of 55 to 70 years of age in the last six months, really the results of neglected gynecology of forty years ago, for in all of these

¹ See original article, p. 345

women the trouble began in girlhood. Two gave decided histories of pelvic peritonitis in early menstrual life. In all of them the uterus was bound down firmly. Two were sent to me as cancerous cases, thinking that the whole uterus would have to be removed; but on careful examination I inserted first a small probe, then a dilator, and allowed the escape of a quantity of pus. In each case the uterus was so fixed as to make the fundus a retention pouch. One patient had Bright's disease so badly that I could not give an anesthetic, nor did I in any case. The uterus was so soft that I could not use the curette, and simply washed out its cavity and inserted an Outerbridge silver spring, which allows free drainage. This spring works very nicely if of the right length and if removed at first about every forty-eight hours, at the same time washing the uterus out with a solution of peroxide of hydrogen. I have in this way succeeded in making these three elderly people comfortable.

The complications in these cases are misleading. The stricture is not absolute, but occasionally a little pus will trickle out and start all sorts of irritations. Vaginitis and urethral caruncle are very common. One case had had a diseased ovary about fifteen years. This should have been removed long ago, but the patient was so broken down that it would have been folly to have attempted to do so. The second group contains two cases, in every way similar. The patients are younger, probably 30, and since they were little children have had a great deal of vesical tenesmus and of trouble in micturition. They have both had uterine catarrh and have been curetted and packed. The endoscope was used on the bladder, which seemed to be healthy. Both urethras were stretched, which gave comparative comfort for a while; the patients would then evacuate the bladder only three or four times in the twenty-four hours, instead of once every two hours; but the old condition soon returned. While stretching the urethra did relieve the condition, it did not rest the vesical muscle, so the next time I first introduced a catheter and without an anesthetic, so that the patient could tell how severe the pain was. I forced into the bladder with a fountain syringe almost a quart of water and then stretched the urethra. Now for about three months this case, which had not improved under other treatment, has been very comfortable. In the other case, also, the patient is more comfortable, it is said, than she has been for fifteen years. I think the books go a little too far in saying that these fissures involve simply the urethra. In a certain proportion of cases the fissure goes above the urethra, and unless a certain paralysis of the bladder wall itself is obtained you cannot cure the case. There are a good many things to be guarded against. In both these cases considerable bleeding followed the stretching. Dr. Clark, of Johns Hopkins, I believe it is who has devised a method of stretching with a small thin rubber bag, which he introduces and pumps full of air. This is altogether unnecessary. The gum arabic itself may

act as a foreign substance and form the nucleus for an accumulation, so I employ the same method as in old cases of enlarged prostate—simply a catheter and a fountain syringe. It should not be done under an anesthetic, for the feelings of the patient are a safe guide in the handling of these cases. In stretching you must be very careful not to tear a hole in the bladder or to do any permanent harm. Both these cases began in childhood; many of this class are children who frequently wet the bed.

Another case illustrates the mischief which cancer may do. So far as could be seen per vaginam, the woman was perfectly well; but vaginal palpation showed that the roof was very hard. I found on examination a mass which extended not only over the floor of the bladder, but also filled the right side of the ramus of the pubes. The patient micturated every few minutes, suffering and bleeding. Wishing to stop the frequent micturition, I put the patient under an anesthetic and attempted to cut into the bladder, but I had not cut far when I found a scirrhus cancer, which I let alone, because a fistula through a scirrhus cancer would be worse than the condition present. I stretched the urethra so that I could get my finger through it, and could then explore the whole floor of the bladder. I found great knobs of cancerous tissue sticking up, but right in front one spot that was healthy. Through this I made an opening. With my finger still in the urethra I could feel some granulation tissue, so I passed a curette through the whole and scraped away the granulations. The bleeding stopped at once. The woman went home in a week, feeling very comfortable and believing she was cured. An interesting point is the way in which the urethra behaved: it contracted at once. There are some cases, as you know, in which over-dilatation of the urethra makes it incompetent. The guide I use in stretching the female urethra is the French 36 male sound. I think you can safely stretch to that point, and then the average finger will pass through the urethra.

The female urethra is much more distensible than that of the male. I really think there will be more progress made in looking up these trifling affairs than in the matters of mechanics which we have considered heretofore. I think we have gone too far in our brilliant operations, and it would be well to stop and think of the little things, as we regard them. When I was studying the eye it was said that our success in life depended on our success in treating conjunctival trouble. And so in our own department.

DR. STEWART.—I would like to ask the doctor one question. He stated that he put a quart of water into the bladder, which he said was fissured. The walls must have been weakened, and he must have put the weakened part on a considerable stretch. How did he know whether he was running the risk of rupture?

DR. JOHNSTONE.—Simply by the patient's feelings. But I do not agree that the bladder wall is weakened by the fissure,

because the fissure never extends into the muscular wall, and the irritation throws up a dam behind it; and to break that dam is partly what we do the operation for. I think, however, that the fissure would tend to strengthen rather than weaken the wall. One reason why I used a quart of water in that case was that the patient was a very large woman, very tall and athletic, and she ought to have been able to retain a quart. In a smaller woman I would not have used so much. You may put in just as much as the woman will let you, but do not anesthetize these patients.

DR. TATE.—Did not the patient complain as soon as the water was introduced?

DR. JOHNSTONE.—Yes; as soon as the catheter was introduced.

DR. TATE.—How did you tell, then?

DR. JOHNSTONE.—The patient increased her complaining until I had put in a pint, and then she let me go on. If you have a rupture it would be at the fundus, I should think, and not around the neck.

DR. PALMER spoke upon the subject of

CURETTAGE IN DYSMENORRHEA.

I think that the subject of dysmenorrhea is divided, with perfect propriety, into neuralgic, congestive or inflammatory, obstructive, and membranous dysmenorrhea. The frequency of these varieties is in the order named. While one who has experience with these cases can nearly affirm the character of the case by that of the symptoms, and while undoubtedly we do find these varieties perfectly pure, I doubt whether any case remains distinctly so for a long period of time. Thus a neuralgic dysmenorrhea does not long remain purely such. It is almost impossible for the uterus to suffer great pain in the function of menstruation, and to continue month after month and year after year, without structural changes occurring in the endometrium. Thus, a neurotic dysmenorrhea becomes in time a congestive and then an inflammatory dysmenorrhea. In a certain sense every dysmenorrhea is mechanical. Thus, a neuralgic dysmenorrhea is certainly mechanical when spasmodic—for instance, when there is a spasmodic action of the fibres at the cervix—just as there is a spasmodic action of the muscles of the sphincter ani in fissure of the rectum. There is a certain obstruction to the flow in dysmenorrhea when the cause was originally a flexion or displacement. The neurotic element enters into all cases of dysmenorrhea sooner or later. Of course obstruction is one of the chief underlying factors causing pain in some cases. If you dilate the cervical canal you relieve, although you do not cure, many cases of neurotic and of membranous dysmenorrhea. Some twelve or thirteen years ago I presented an article to the American Gynecological Society on the subject of “Dysmenorrhea, its Essential Nature.” I took the ground that the so-called “mechanical”

dysmenorrhea did not usually exist, as supposed, except secondarily, or at least was not the cause of the pain in most cases; that "mechanical" dysmenorrhea was comparatively uncommon. Those who will look back over the literature will remember the papers of Mackintosh, and some can remember those of Marion Sims advising us to split the cervix to relieve pain from menstruation. Every one here has undoubtedly seen cases of stenosis of the cervical canal—a small external os and an elongated cervix. In many of these cases there is no pain. Some we examine for sterility, to see what can be done to overcome the difficulty. It does not follow that every woman with a conoid cervix has dysmenorrhea, though no doubt the majority do. I shall not say anything about the value of certain medicines in the treatment of this disease. Almost everybody has his special remedy. For the most part I have limited myself to three, and I try to govern myself in the selection of one of these by the character of the case. If we bear in mind that almost every case of dysmenorrhea is sooner or later attended with structural changes in the endometrium, whether or not it was originally neurotic, we can readily understand how curettage of uterus may be beneficial. Many cases of neurotic dysmenorrhea can be relieved by simply curetting the uterus. To say that curetting does all the good is not reasonable, for I believe the dilatation is also of value. Many, perhaps, remember the value ascribed to dilatation by William Goodell. He reported many cases that were relieved by it. I have seen considerable good from dilating, but the majority of cases in my experience have had a return of the trouble; hence I think dilatation is often insufficient to effect a permanent cure. If we curette the uterus we of course alter the character of the endometrium, so very apt to become changed when the disease has lasted for some time. One thorough curettage with a sharp curette will do good when preceded by dilatation and followed by packing, and, it may be, by some intrauterine medication also. Of course curettage of the uterus is more apt to do good in the congestive form of dysmenorrhea than in the purely neurotic; it is still more apt to be beneficial in the inflammatory variety, and most valuable in the membranous variety. The membranous variety of dysmenorrhea everybody recognizes as the most difficult of all kinds to treat successfully. Doubtless many of these cases are not cured at all. I remember that, when the subject was brought up before the Gynecological Society in 1893, Dr. Emmet said he had never been able to cure a case. That remark was made following a paper, introduced by Dr. Reamy, on the value of curetting in the membranous variety of dysmenorrhea. The author of the paper advised repeating the curettage at short intervals until the membrane was healthy. I have not curetted the uterus as often as he advised, but have performed the operation upon the same uterus a number of times. As stated by myself in the work "Clinical Gynecology," I believe the best treatment for membranous dysmen-

orrhea is to thoroughly curette the uterus and then make use of galvanization. I have no doubt as to the potency of intra-uterine galvanization for many cases of dysmenorrhea, neuralgic and membranous, any more than I have of the efficacy of quinine to cure malaria. In cases that have continued for years, which I have treated this way, a permanent cure has been effected. While I consider curetting of the uterus is an admirable thing in many cases of neurotic dysmenorrhea, the best treatment of those cases, I think, next to hygiene and medicine, is by the use of intrauterine galvanization. I use the electrode as I would a sound or curette put inside the uterus. I believe there is no danger in using a metallic electrode, when thorough aseptic and antiseptic precautions are employed, especially if it is done in a hospital or the patient's home. The patient should be properly prepared for its use, and the electrode made perfectly clean and dipped in some antiseptic solution before being introduced into the uterus. My impression is that many cases of neurotic dysmenorrhea have something of a structural change of the uterine mucous membrane, not far from the internal os, which condition leads to a spasmodic action of the circular fibres. There is a hyperesthesia of the mucous membrane so great that pain is excited by the tension of menstrual hyperemia. I think it very important, in using intrauterine galvanization, to look to a proper selection of the pole. Whether the positive or the negative pole should be employed must depend upon the amount and duration of menstruation, as well as the size of the cervical canal. If menstruation lasts too long, is too profuse or too frequent, it is better to employ the positive pole; but if it is too scanty and too short, and does not come on sufficiently frequently, it is better to use the negative pole. The positive pole is more or less hemostatic; the negative is more or less stimulant. The former dilates, the latter contracts.

DR. TATE.—I would like to ask Dr. Palmer how long he dilates, as a rule. For instance, when dysmenorrhea is coming on, does he dilate beforehand, and, if so, how long?

DR. PALMER.—Several years ago, before we practised this method of curettage, I frequently employed dilatation only in these cases, and preferably three or five days after the period. Often I did it without an anesthetic, but in recent years I have used the anesthetic in all cases. For pure pain, with no visible alterations in the uterus, I do not employ dilatation, but if the pain is dependent on stenosis of the canal and elongation of the cervix I may dilate and then curette, because structural changes have probably occurred.

DR. JOHNSTONE.—I feel very keenly about this subject, and I hope the essayist will not think I mean anything personal by the attack I shall make upon him. He has given us the same classification that was taught twenty years ago. Thomas was the first I ever heard use it, and that given by my beloved old teacher, Goodell, was very much the same; but fifteen years ago I began to doubt its accuracy, and the more I studied it the

more convinced I became of its fallacies. There is no such thing as neurotic dysmenorrhea. The whole thing is based on a wrong conception of the subject. The great bulk of neurotic dysmenorrheas, so-called, are mistaken diagnoses. They are dysmenorrheas of ovarian origin. The rest are due to arrested development of the uterus. With all respect to my former teachers, my studies of the endometrium have led me to the conclusion that there are but two forms of dysmenorrhea—two great classes : the first is undoubtedly due to infection in some way or other, the other to a faulty development of the uterus. The latter is very apt to bring on infection. If you examine carefully these cases that you call neurotic dysmenorrhea, you nearly always find a small os, and the uterus small in some direction and not draining itself as it should, and that some degenerative changes have already set in. The beginning of the cirrhotic ovary is absolutely overlooked. If pain does not mean tension, what does it signify ? Wherever there is pain tension is present. That is the fundamental law of all clinical experience, and the only safe path through this maze of what was, to me, an inextricable tangle. The first thing I wish to know in cases of dysmenorrhea is whether pain is present before or after the flow begins. If the flow is fluid, without clots, and with nothing to show that there is an obstruction to start uterine contraction, I at once suspect trouble about the broad ligaments. If there are some clots I know there is some trouble with the endometrium, because a healthy endometrium cannot give rise to clots. If there is pain without infection it is relieved when the flow comes on. When the Stephenson wave is at its height, if there is obstruction, the increased pressure will cause pain. These defective uteri may start changes in the ovary and peritoneum before infection occurs, but sooner or later there is likely to be an infection, just as old bladder troubles result from an enlarged prostate. A small quantity of residual urine causes changes in the bladder. Probably most of the gentlemen present have seen my inaugural paper on "The Infantile Uterus," read before the American Gynecological Society. A little girl has typhoid fever, measles, or something else which saps her metabolism, and the uterus does not get its proper amount of nourishment, does not develop as it should, and the individual goes through life like a stunted rose. And there, I believe, is the starting point of many of these "neurotic" cases, of many of these cases of cirrhotic ovaries. After the infection is on we all understand it ; it is simply a catarrhal condition, like that of the nose and throat. The proper thing to do is simply to treat it just as the nose and throat men do. Part of the mucous membrane is overripe every twenty-eight days and is shed, and the epithelial lining is replaced as far down into the utricular follicles as it has been stripped off, and there some of these germs have lodged. Like Dr. Palmer, I believe curetting does good, but I do not believe that good is done by the stretching alone, but by the packing holding the uterus open. The infantile uterus I have often put through an

ordinary curetting, which will often do more good in a week than a month of galvanization. This will start the growth of the muscular wall, and it is often surprising how much larger and softer the uterus is when the packing is removed. It is well known that many of these cases are cured by the first pregnancy, if this occurs. Many are cured by thorough curetting, thorough disinfection with carbolic gauze, and thorough packing that holds the canal open six or eight days. I think that removing the gauze every day is meddlesome and injurious. I consider it very dangerous to repack a uterus after curetting, and I never do it under any circumstances, but try to keep the packing in place four to six days. In forty-eight hours a wall is thrown up behind the raw surfaces. The odor comes from fermentation in the vagina, and that, of course, must be kept thoroughly clean.

"Membranous" dysmenorrhea, as it has been called, is simply a form of arrested development of the endometrium itself. Instead of the endometrium having gone on to the condition in which that of the childbearing woman should be, it is nearer to the condition of the endometrium in the pig. It is then shed in lump. The cause of the pain in these cases is a hemorrhage into the endometrium itself, which has to strip off the entire structure instead of breaking through at a great many spots. That is a form of arrested growth and belongs away back in the ages to some other animal. I have cured these cases by putting the woman through an artificial labor. I do not say this will cure all cases, but my statistics show that I cure absolutely nine out of ten, and the remaining case is very materially helped, even though she has bad appendages. I believe the pain is due to the increased pressure at the height of the Stephenson wave. I am satisfied that the choice between laparotomy and the curette is largely in favor of the latter. Many cases in which five years ago I would have removed the appendages I now save to citizenship and motherhood. But do not understand that I would curette a woman with pus in the appendages. The use of the curette under these circumstances would be inexcusable, unless a laparotomy were performed immediately afterward. Some men curette every case before they do a laparotomy, but I prefer to curette afterward. One case of which I knew in the practice of another surgeon promptly died from a ruptured tube. I do not say that I should never do a curettage before laparotomy, for it may be necessary in some cases. In curetting we should remember that we are putting the individual through an artificial labor and that she must be treated accordingly. We cannot, like the nose and throat men, simply remove the diseased part and let the patient go.

To summarize, I believe that dysmenorrhea ought to be classed as ovarian or uterine, and that when uterine it is usually infective, except in the class of cases of arrested growth.

DR. GEORGE E. JONES.—You take no account of flexions?

DR. JOHNSTONE.—Flexions and versions are simply complications.

DR. JONES.—Of which form?

DR. JOHNSTONE.—They may be complications of either.

DR. ROBERT STEWART.—I am very glad to hear this stand taken against the teaching we have all had to go through with. It seems to me that all the old-time classifications were modifications of one or two conditions. I do not exactly understand or agree with Dr. Johnstone in regard to flexion. I do not believe flexion is necessarily the result of infection or of malformation or imperfect development of the uterus. I think we have all seen cases in which, at least as far as any one can trace, the flexion, especially the retroflexion, was due to bad habits or clothing, etc., so I do not see how we can rule out as factors this and one other thing of which I shall speak. The other factor is the Credé method of expelling the placenta and leaving the uterus in a condition of subinvolution. Given a flexion in one direction or the other, if this idea be correct it is easy to understand how there might be a congestive condition of the parts; indeed, there would be a tendency to hyperemia of the uterus itself and the parts adjacent, and this, perhaps, produces some of the cases of dysmenorrhea. I want to express my stand with the gentleman in regard to the necessity for a change in the nomenclature.

DR. JOHNSTONE.—I did not mean to say that versions are not factors in the causation of dysmenorrhea. I have seen two such cases in very strong, athletic women. One was riding a horse, was thrown, and finally alighted on her feet and was a cripple afterward. The other was riding a wild horse which “bucked,” and she became a cripple. The uterus is surrounded by a circle of arteries, and it is not by the flexion the supply of nutrition is cut off, but by the twisting, and it is for this reason that many of these women are afforded so much comfort by the pessary. Accidents are one of the causes of versions, but I think that, unless we can get a record of absolute health before the occurrence, we must consider it a consequence rather than a cause of the disease. As was said, bad habits, constipation, allowing the bladder to be over-distended, are factors, but they may all be classed as simple complications. I believe that most flexions are due to infection. I believe that in many of these cases the uterus is tilted one way or the other, and, like a piece of paper, becomes crimped in that position and is apt to stay there.

DR. MAGNUS TATE.—I have a patient with a great many hysterical manifestations and a flow of pure blood, but I cannot find any enlargement of the tubes or ovaries.

DR. JOHNSTONE.—Is she relieved by the flow?

DR. TATE.—Not very much.

DR. JOHNSTONE.—What is the depth of the uterus?

DR. TATE.—About two and a half inches.

DR. PALMER.—Is she a married woman?

DR. TATE.—No, sir.

DR. PALMER.—Has she ever been pregnant?

DR. TATE.—No, sir.

DR. PALMER.—Then she has a normal uterus.

DR. JOHNSTONE.—You will find, then, in all probability, that the woman has an infantile uterus, with a degeneration of the ovary already begun.

DR. ROBERT STEWART.—I wish some one would speak of masturbation in girls and young women as a possible cause of these dysmenorrheas. It is very difficult to discover whether such habits are indulged in, yet we quite frequently have our suspicions thoroughly aroused as to their possible existence, and in people whom we little suspect. A woman, whom I first knew when she was about 19, came to me complaining of considerable pain at the menstrual epoch, not especially relieved by the flow. The blood was clotted and the expulsion of the clots seemed to give more or less pain, the pain, however, being worse at the beginning. I make it a practice not to put a sound into the uterus until I am forced to do so; I feel that I can by other means map out the uterus with sufficient accuracy. In this case the uterus was comparatively small. I could detect no ovarian trouble. Thick, tenacious mucus was coming through the cervix. She had been pretty careful of her health, and an examination of the blood showed there was not much depreciation of the blood itself. She finally acknowledged that when she was somewhat younger a friend had visited her, and, as their quarters were not very commodious, this individual had slept with her and introduced her to habits which she had not yet overcome. That woman has never borne children. This was a lesson to me and caused me to surmise a good deal. I think that much of this is done, and I believe it is the cause of considerable trouble.

DR. J. A. JOHNSON.—Setting aside the cases of endometritis which require dilatation and curetting, I believe that all other cases, those which result from malnutrition of the uterus, are as much benefited by massage as by anything else. When we dilate, or dilate, curette, and pack, we are simply performing massage. This calls to my mind a case, the wife of a physician, who suffered a number of years from dysmenorrhea which was supposed to be of the neuralgic form—if such a form exists—or at least ovarian, and some suggested removing the uterus to relieve the dysmenorrhea. After the use of various drugs she fell into the hands of a physician who makes use of massage.

DR. JOHNSTONE.—Internal or external massage?

DR. J. A. JOHNSON.—External. In two or three weeks she began to get relief. She remained with this gentleman three or four months, and she had not known for years before what good health was. She is now receiving massage only some two or three times a week. I have often thought that galvanization really only gives a sort of massage. Possibly by the use of massage we may be able to stimulate the infantile uterus to new growth. I believe that massage, whether in the form of

dilatation, electricity, or packing of the uterus, is practically the beneficial factor.

DR. BONIFIELD.—In answer to the question Dr. Tate asked early in the discussion, as to the time, in relation to the menstrual period, for dilatation, I will say that it has been my practice for a good while, in those cases where dilatation and curettement gave marked relief for some time (I have not dilated without curetting for a number of years), to have the patient come to my office when the dysmenorrhea reappeared, a few days before an expected period, and to pass two or three graduated sounds. It does not always cure these cases, but frequently gives the patient considerable relief. I use the sounds for dilatation only after having thoroughly dilated under an anesthetic with the Goodell instrument. I do not think it possible to dilate thoroughly with sounds without an anesthetic, at least not without causing more pain than I care to subject my patients to. The relief that dilatation gives in some of these cases is brought about by paralyzing the circular muscular fibres in the region of the internal os, just as we relieve the pain produced by fissure of the anus by stretching the sphincter. The relief that comes from the use of the sounds in the way I have indicated is from the establishment of drainage. I have never had any trouble from passing the sounds in my office, but care is taken that sounds and vagina are sterile. As to Dr. Stewart's criticism of the Credé method of expressing the placenta, I do not understand that this method is correctly performed when we press the uterus down into the pelvis.

DR. STEWART.—It is not, but that is what they are "trying" to do.

DR. BONIFIELD.—My way is to get the uterus between my hands and squeeze it as you would a sponge, and then there is no danger of pushing the uterus down. I think damage is often done by not replacing the uterus after pulling it down for curettement. I recall one case in which I produced a displacement by the use of the bivalve speculum. I afterward replaced the uterus, letting the patient use a pessary for a while, and the uterus got smaller, and after a time she was relieved of the version. Since then I have not used the bivalve speculum without taking the pains to replace the uterus after the speculum is removed. I agree thoroughly with Dr. Johnstone that the curetting and packing causes practically a labor. In one or two cases such violent contractions have been caused that the gauze has been expelled from the vagina as well as from the uterus. I always expect considerable pain to follow the operation. I do not quite agree with Dr. Johnstone as to the blood supply. His arrangement of the arteries is absolutely correct. They accommodate themselves to the flexions of the uterus, but we know that the damming back comes from the obstruction of the circulation in the veins, and I do not think they so readily accommodate themselves to the form of the uterus. In the voluntary muscles of the body the circulation in the veins depends largely on the muscular contraction, and so

in the uterus it depends on the mobility of the uterus and the general tone of the organ, and when from any cause—debilitated health, constipation, etc.—we get a damming up of the blood in the uterus, version or flexion may be produced. I do not believe that flexions are always due to the infection. The uterus is sometimes so limp it will not hold itself up.

DR. JOHNSTONE.—That is arrested growth. Mollities uteri sometimes makes the organ very limp.

DR. BONIFIELD.—I believe there is such a thing as mollities uteri, but how can you tell it? I, with Dr. Johnstone, would not curette if I could map out the distended appendages or had reason for believing there was pus. But if a case came to me before pus was present I should curette. I believe we can in this way often prevent the formation of pus. A stricture first occurs, damming up of secretion in the tube, and then the pus-formers gain entrance and produce the pyosalpinx. In the early stage we so deplete the blood vessels and relieve the congestion at the mouth of the tubes by thoroughly curetting the uterus that they again become patulous, and thus the salpingitis is cut short before a pyosalpinx forms.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of December 2d, 1896.

The President, F. H. CHAMPNEYS, M.A., M.D., in the Chair.

Specimens.—Report on a case of tubo-ovarian abscess exhibited by DR. WALTER TATE was read. DR. HUBERT ROBERTS read a short note of a case of primary epithelioma of the vagina and illustrated his remarks by microscopical slides and a drawing. DR. DAKIN showed a cast from the uterus having all the characters of the decidual membrane found in connection with ectopic gestation, and a small ovarian cyst, with microscopic section of each. DR. AMAND ROUTH exhibited an entirely detached uterine fibroid removed by laparotomy. DR. JOHN PHILLIPS showed a fetal monstrosity resulting from amniotic adhesion to the skull.

DR. H. R. SPENCER read a paper on

THREE CASES OF CESAREAN HYSTERECTOMY (PORRO'S OPERATION).

The author gives a full account, with charts and photographs, of the following three cases of Cesarean hysterectomy:

CASE I.—A. D., age 28, no children, one abortion, after a protracted pregnancy (two hundred and ninety-nine days after menstruation), was operated upon in labor, which was abso-

lutely obstructed by fibroids in the lower segment. The uterus removed weighed six pounds. Mother and child recovered and were quite well four years later; the former had gained twenty-one pounds in weight and still had flushes occasionally. The sexual passion was lost for fourteen months after the operation, and then reappeared. The scar was quite sound and free from hernia.

CASE II.—H. G., primipara, age 21, was operated upon in labor, which was absolutely obstructed by a large sacral enchondroma. The patient was suffering from hydronephrosis and nephritis at the time of the operation, and died on the ninth day, apparently of uremia. The child recovered. An account of the naked-eye and microscopic appearances of the tumor is given.

CASE III.—E. W., age 33, five children, was delivered of a living child through a cancerous cervix on March 25th, 1893. The cervix was removed by the high amputation fifteen days later. Fourteen months later the patient became pregnant and the fundus of the vagina became completely closed by cicatrix. Cesarean hysterectomy was performed near term on March 6th, 1895, labor not having commenced. Mother and child recovered, and the patient was free from recurrence of the cancer and from hernia on April 30th, 1896, over three years after the supravaginal amputation of the cervix. The sexual passion was lost after the hysterectomy.

For simple cases of contracted pelvis the author prefers Cesarean section to Cesarean hysterectomy; he has performed the former operation also on three occasions, each time with success. He discusses the employment of Cesarean hysterectomy in the cases now recorded, and directs attention to their chief features of interest.

DR. ARTHUR GILES, in referring to Dr. Spencer's second case, said that enchondroma or osteoma of the sacrum impeding labor was such a rare complication that he thought it would be of interest if he mentioned a case which had come under his observation. The patient had had two children; the last, born eight years previously, was delivered with forceps. Vaginal examination showed a hard, hemispherical mass the size of half an orange springing from the second and third sacral vertebrae in the median line. The conjugata vera was in consequence reduced to three and three-quarter inches. It was thought advisable to perform podalic version, and he did so before the membranes were ruptured. The labor then proceeded in a natural manner. He had not an opportunity of ascertaining the true nature of the tumor, but from its position and extreme hardness thought it to be either an enchondroma or an osteoma.

DR. HUBERT ROBERTS asked if in ordinary cases of Cesarean section he considered it necessary to take the uterus out of the abdominal cavity after extraction of the child, as it could be sutured *in situ*, and taking out the uterus and exposing it to cold appeared to involve greater shock. He also asked if Dr. Spencer under similar conditions used vaginal drainage or used

the vaginal or intrauterine douche after the operation. Dr. Roberts asked whether any failure of contraction of the uterus subsequent to the use of the elastic ligature or even constriction by the hands had been noted.

DR. PETER HORROCKS thought that possibly the intraperitoneal method would have been a more satisfactory operation, in two of the cases at least. He asked if there had been any pain through dragging on the scar subsequent to operation. He suggested that the fatal case might possibly have been due to absorption from the distal end of the stump of septic matter, which was always a danger unless the vessels were kept thoroughly compressed by the *serre-neud*.

DR. DRUMMOND ROBINSON referred to the method of completing the uterine wound adopted by Dr. Spencer in two of his cases—viz., tearing with the fingers. He had recently, when assisting at a case of Cesarean section, been surprised at the ease with which the uterine tissue tore. He asked whether this was also Dr. Spencer's experience, and whether in the cases narrated in his paper he had been able to regulate the amount and direction of the tear.

DR. SPENCER, in reply, stated that the drainage tube was employed in Case 3 because, owing to the complete closure of the vaginal cicatrix, a small cavity was left below the wire of the *serre-neud*, in which blood might have collected and have become infected without means of exit until the stump came away. He thought that the uterus should not be removed from the abdomen before the Cesarean incision was made; after the delivery of the child he withdrew the organ from the abdomen, in order to avoid soiling the peritoneum and to facilitate compression. He had adopted the extraperitoneal method of treating the stump, because he believed it to be the safer one. He had never known patients complain of dragging upon the scar left by the stump, and regarded the greater liability to hernia as the only serious objection to that method of operating. In reply to Dr. Robinson he could state that it was very easy to tear the uterine muscle, but his experience in another case showed that the direction of the tear could not be sufficiently controlled by the operator.

REVIEWS.

FEMMES EN COUCHES ET NOUVEAU-NÉS—Parturient Women and New-born Infants. By PIERRE BUDIN, *Accoucheur en Chef de la Maternité; Professeur Agrégé de la Faculté; Membre de l'Académie de Médecine*. Illustrated by 146 wood engravings and 7 colored plates. Pp. 616. Paris: Octave Doin. 1897.

This large volume contains the result of ten years' clinical and experimental work, and consists mainly of the collection

of writings heretofore scattered through journals and society reports, with the addition of some new matter. It is therefore not a text book of obstetrics, but it is a most valuable addition to and elaboration of the knowledge acquired in text books. In an easy, colloquial style the author seems to be confiding to us the results of his experiences, the history of cases and his deductions therefrom, quite as though we were seated in his study in delightful, familiar scientific converse. He possesses a happy faculty of drawing new out of the old. The ground covered is an extensive one, and where all is of such interest it seems unfair to single out special portions for praise. Yet the chapters upon asymmetry of the nates, luxation of the hip, puerperal arthritis of the sacro-iliac symphysis, placenta previa, and uterine hemorrhages appear to be of more than usual value, both as to detail and clearness of description and excellence of the accompanying illustrations. The question of infant-feeding receives much attention. No new ideas are promulgated, but the author dwells upon the superiority of mother's milk to bottle milk, describes the best forms of bottles, etc., and presents numerous charts which give the tracings of the body weight of infants under various conditions of feeding.

The province of the midwife is discussed in this book, and a minute description is given of the obstetrical service in La Charité. The criticism might be made that the topics in the volume are not arranged with the system and logical sequence to which we are accustomed in works of this nature; but regarding it, not as a text book, but as a supplementary record of obstetrical experiences and observations, the form is of less importance than the information. The illustrations fulfil their function and illustrate.

A. R. S.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES. By RICHARD C. CABOT, M.D. With colored plates and engravings. New York: William Wood & Company, 1897.

To Dr. Cabot belongs the credit of publishing the first work in the English language upon the clinical examination of the blood—a subject which, though still young, seems destined to become valuable as an aid to diagnosis and prognosis. While intended for practical use in this connection, it can hardly fail to stimulate further research in this comparatively untrodden field. The technique of the various methods employed in examination of the blood is clearly described, and a number of chapters upon the physiology of the blood furnish a groundwork for the study of its pathology. After treating of the general pathology of the blood the author turns to that of its characteristic diseases, and then takes up its consideration in acute and chronic infectious diseases, the affections of the special organs individually, and of the nervous system, constitutional and hemorrhagic diseases, carcinoma and sarcoma. He describes the parasites of the blood, and closes with a chapter upon the blood in infancy. In each case the pathological

conditions found in the blood are described, and are applied for the purpose of differential diagnosis. The work is illustrated with colored plates, and a carefully classified bibliographical list of fifty pages is appended for reference. H. D.

BOOKS RECEIVED.

THE ANATOMY OF LABOR, INCLUDING THAT OF FULL-TIME PREGNANCY AND THE FIRST DAYS OF THE PUERPERIUM. Exhibited in Frozen Sections reproduced ad Naturam. By A. H. F. BARBOUR, M.A., B.Sc., M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh, etc. Third edition. Twenty-six plates with description. Edinburgh and London: W. & A. K. Johnston, 1896.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Vol. X. Diseases of the Nervous System. New York: William Wood & Company, 1897.

REVUE DES SCIENCES MÉDICALES EN FRANCE ET À L'ÉTRANGER. RECUEIL TRIMESTRIEL ANALYTIQUE, CRITIQUE ET BIBLIOGRAPHIQUE. Dirigé par GEORGES HAYEM, Professeur de Clinique Médicale à la Faculté de Médecine de Paris, etc. Tome XLIX. 1er Fascicule. Paris: Masson et Cie., 15 Jan., 1897.

SWEDISH MOVEMENTS OR MEDICAL GYMNASTICS. By DR. T. J. HARTELIUS, Director of the Central Gymnastic Institute of Sweden, etc. Translated by A. B. OLSEN, M.D., with Introduction and Notes by J. H. KELLOGG, M.D., Life Member of the British Gynecological Society, etc. Battle Creek, Mich.: Modern Medicine Pub. Company, 1896.

INDEX 'CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Authors and Subjects. Second Series, A-Azzuri. Pp. 828. Washington: Government Printing Office, 1896.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY,

IN CHARGE OF THE EDITOR AND DR. JULIUS ROSENBERG.

PEDIATRICS,

IN CHARGE OF DR. A. RAYMOND-SCHROEDER.

OBSTETRICS.

Marriage with Unsound Pelvic Organs.—In a paper on the evils of marriage and pregnancy in women who do not possess sound pelvic organs, A. E. A. Lawrence¹ mentions, among such conditions, inflammation of the pelvic organs leaving these matted together. Of such, measles and scarlet fever in adults are common causes. Fibroid tumors which produce their usual symptoms are considered as contraindicating marriage, as are also malignant disease of the uterus, deformity of the pelvis of such extent as to prevent the delivery of a living child, and tubal disease; also ovarian tumors or

broad-ligament cysts, until their removal shows whether the pelvic organs are in such condition as to make marriage permissible.

Influence of the Ovaries during Pregnancy.—A series of experiments by Sokoloff² upon bitches showed that if the ovaries were removed two or three weeks after conception the continuation of pregnancy was arrested. It was also found that at the time when labor was due the uterus was small and atrophic, and no traces of the impregnated ovum were present, although careful observation made it certain that the uterine contents had not been expelled. These experiments prove that contraction during pregnancy produces atrophic changes in the uterus and atrophy and absorption of the ovum.

Fatty Degeneration of the Uterus during Pregnancy.—L. M. Bossi³ has made a clinical and experimental study of this condition, from which he draws the following conclusions: Three human uteri, one of which was removed at eight months and the other two at term, presented every sign of active fatty degeneration. The author propounds the query whether fatty degeneration is the ordinary physiological condition found in the uterus during the last or the two last months of pregnancy. If this were the case it would account for the marvellous rapidity with which the uterus becomes reduced in size after labor. Too advanced and diffuse a condition of degeneration might possibly be the reason of uterine inertia during parturition. He suggests that obstetricians who have any opportunity of examining uteri removed during pregnancy make a practice of noting whether fatty degeneration exists, the question being an interesting one from an obstetrical point of view.

Asepsis and Antisepsis in Obstetrics.—Baumm,⁴ like Ahlfeld, is an adherent to the theory of autoinfection. If the fever is caused by autoinfection the prognosis is good, provided the patient is let alone and is *not* treated with disinfectant douches or applications. As one would naturally suppose, instrumental interference, even under the strictest precautions, predisposes to infection, and the unavoidable injuries to the soft parts form a good nidus for bacteria, which grow and flourish in the necrosed tissues. Even in perfectly healthy persons the tissues and genital secretions are altered by undue interference (instruments, vaginal examinations), so that the condition for the propagation of bacteria becomes more favorable. For this reason vaginal examinations must be restricted as much as possible. Disinfection of the hands with bichloride, carbolic acid, or lysol is shown by experiments to be insufficient; ninety-six per cent alcohol is the best disinfectant for the examiner's hands.

W. E. Lewis²¹ attributes his freedom from septic cases after labor to washing his hands thoroughly with soap and water, and instructing the nurse to bathe the legs and genitals of the woman twice daily after thoroughly scrubbing her own hands. H. W. Bettmann²¹ holds that cleanliness of the hands is the only necessary precaution in midwifery.

Anesthesia in Obstetric Practice.—In a continuation of former papers upon this subject H. B. Gardner²¹ says that when morphine is used hypodermatically before the administration of chloroform, extra care must be used with the anesthetic, as the signs of chloroform narcosis are apt to be masked by the morphine—the pupil being contracted, respiration shallow and liable to sudden weakness, and so elimination of the chloroform slow; the respiratory mucous membrane losing reflex irritability, and after-sickness being of more constant occurrence. The addition of atropine gr. $\frac{1}{16}$ to morphine gr. $\frac{1}{4}$ may prevent reflex inhibition of the heart by paralyzing the vagus, and may lessen the after-sickness. The use of morphine with ether lengthens the stage of excitement and is not advised.

Labor.—O. W. Sherwin⁶ calls attention to the necessity for catheterization if urine is not passed naturally within a few hours after delivery. A silver instrument, well boiled, should be used.

Forceps for the After-coming Head.—Klien⁶ claims that the forceps should never be applied while the head is above the brim, but may be used after it has entered the pelvic cavity, especially in the funnel-shaped pelvis.

Inertia of the Uterus.—Eustache⁶ records a case in which a precipitate labor was followed by total uterine inertia, which failed to respond to external and internal massage of the uterus, hypodermatics of ether and of ergotin and hot intrauterine injections, and death occurred before an intravenous injection of saline solution could be given.

C. Lucas,⁹ in writing of uterine inertia, describes a new cervical dilator which stimulates contraction of the uterus and dilates the cervix. It resembles Barnes' bag in structure, is almost cylindrical in form with a constriction near its lower portion and concave upon its upper extremity. It is slowly filled with water after its introduction.

Symphiseotomy.—Of three cases in which this operation was performed by J. Braithwaite,¹¹ all recovered, and two of the infants are still living, including one which was delivered by an induced labor at eight months. He found it impossible to immobilize the pelvis subsequently, except by the use of a belt with three or four straps and buckles.

Symphiseotomy by which the child was saved, and from which the mother recovered without loss of function, is reported by J. B. Swift.¹² He prefers Cesarean section in nearly all cases, believing symphiseotomy indicated only when craniotomy on the living child seems the only other resource.

E. P. Davis¹³ describes a symphiseotomy performed on account of disproportion between the pelvis and a large child. The mother recovered completely, the child lived one day.

Cesarean Section.—A Cesarean section followed by death in twenty-four hours from acute sepsis is put on record by C. A. von Ramdohr.¹⁴

New Treatment for Central Placenta Previa.—When the os is not dilated the finger burrows its way through the pla-

centa up to the amniotic covering. Under the influence of pains the latter is pressed into the os and dilates it rapidly. This method is indicated only in central placenta previa with undilated os and in the presence of good pains. The author, Nyhoff,¹⁵ does not state whether he has tried it.

Ectopic Gestation.—H. A. Kelly²² has treated ten cases of ectopic pregnancy by vaginal puncture and drainage; all have recovered rapidly, with no marked suppuration. Kelly employs the same method in all cases of pelvic suppuration which can readily be reached and drained. The sac is punctured through the posterior fornix by sharp scissors, which are opened and withdrawn. After cleaning and irrigation of the sac it is packed with gauze, which is left in several days, and the wound then washed out daily until it closes.

In a case of extrauterine pregnancy, Stouffs,¹⁸ operating through the vagina, removed only the fetus and blood clots. Copious and repeated irrigation with formalin was employed for the disinfection of the sac, without any toxic symptoms or irritation. Complete recovery.

W. T. Lusk¹⁹ recently operated upon a case whose clinical history was apparently that of appendicitis, but in which a pelvic tumor existed. It proved to be a tubal pregnancy, removal of which was followed by recovery.

A case of ruptured ectopic gestation, which was seen too late for operation and proved fatal, is recorded by E. Collins.²³

I. B. Perkins²⁰ reports two cases of ectopic gestation, with one death after operation. In this case the symptoms simulated closely those of a pelvic abscess.

A report of three cases of ectopic pregnancy is given by R. Morison.²¹ The first was diagnosed and removed before rupture, although five weeks elapsed between the first attack of severe abdominal pain and operation, hemorrhage occurring into the chorion and escaping through the uterine ostium of the tube; the fetus had one head and two bodies, joined anteriorly; the corpus luteum of pregnancy was in the opposite ovary. The second case was diagnosed before rupture. In all three operation by the abdominal route was successful.

A case of tubal pregnancy described by J. W. Taylor²² shows that rupture of the tube may be followed by a localized hematocele with some encapsulation.

A. Brothers²⁵ reports a recovery after removal of a ruptured tubal pregnancy.

E. Vignard,²⁶ having treated two cases of extrauterine pregnancy without removing the placenta, attributes his success to the method employed. The fetus was extracted, the sac marsupialized and drained for two or three days with a few loose strips of gauze. After these were removed the dressings were renewed as infrequently as possible and no irrigation employed. He thinks that daily irrigation may cause infection or sloughing of the placenta.

A case of ruptured tubal pregnancy treated by abdominal

section, with recovery, is reported by A. J. Smith.²⁷ There was no acute pain at the time of rupture.

T. A. Stoddard¹⁴ advances the theory that ectopic pregnancy is due to the fecundation of an ovule near the free end of the tube, on account of coition just previous to menstruation, at which time an ovule probably ripens and is discharged. The subsequent enlargement of the ovum may be rapid enough to prevent its passage into the uterus, if fecundation occurs sufficiently near the outer end of the tube. He calls attention to the fact that all animals have intercourse only during or just after the period corresponding to menstruation.

Martin²⁸ demonstrated a specimen of extrauterine pregnancy with an ovarian cyst of the opposite side. The pregnant tube had ruptured about the third week of pregnancy, and a slight hemorrhage occurred into the peritoneal cavity, ceasing, however, spontaneously. The interesting points in this case are the partial absorption of the products of pregnancy, and the fact that Martin advises the removal of the ectopic formation by anterior colpotomy after the method of Dührssen.

Schalita⁹ describes a case of extrauterine pregnancy which came to operation with the diagnosis of suppurating ovarian cyst. The causes leading to this erroneous diagnosis were the depressed condition of the patient, which prevented the obtaining of a good history; the vast size of the tumor, filling the whole abdominal cavity, its fluctuating character; and, finally, the existing fever.

Intramural pregnancy is termed by Hennig a form or subdivision of interstitial pregnancy in which a part of the ovum, in the course of its growth, penetrates the uterine end of the Fallopian tube and extends into the muscular layers of the uterus. Such a case is described by Rosenthal.²⁹ It concerns a pluripara in whom ectopic pregnancy was diagnosed about the fifth month of gestation. Rosenthal performed laparotomy and removed the oval sac together with the uterus and appendages. The examination of the specimen showed a primary development of the ovum in the uterine end of the left tube; this ruptured, whereupon the ovum entered the wall of the uterus, causing an atrophy of the surrounding structures and consequently an intramural pregnancy.

Twin Pregnancy in a Fallopian Tube.—A ruptured twin tubal gestation in which both fetuses were found in the left tube is recorded by C. H. Cargile.¹⁴ Death followed.

A woman æt. 30 years was brought in a dying condition into the Necker Hospital in Paris. Brodier⁶ diagnosed ectopic pregnancy, and, in spite of the patient's condition, performed laparotomy. The peritoneal cavity contained vast masses of blood. Upon withdrawing the uterus a rupture in the left tube was seen. Two fetuses of equal size (seven and a half centimetres) were found in the pelvis. Although the patient's condition was so poor that artificial respiration was necessary during the operation, she made a good recovery.

Inguinal Hernia containing a Pregnant Fallopian Tube.—The following interesting case is reported by Jordan³¹ from Czerny's surgical clinic in Heidelberg: A woman was admitted who had undergone several operations for pyosalpinx and vesico-vaginal fistula. The pyosalpinx had ruptured into the right broad ligament, and the pus found its way under Poupart's ligament, where an incision was made, which left a scar. The patient suspected pregnancy and went to the clinic for examination. Prior to this she was seized with severe abdominal pain and repeated vomiting. Upon admission she appeared very anemic, face pinched, pulse rapid. Above the aforementioned scar was a swelling the size of a fist, with tympanitic resonance, while below this scar another tumor was found, smaller in size, soft, and not reducible. A third swelling was located at the outer angle of the scar, corresponding in position to the external inguinal ring; this was the size of an apple, soft, irreducible, and painful upon palpation. The treatment consisted in high rectal injections, which resulted, however, in neither stool nor flatus, and the administration of purgatives, which were not retained. On account of the increasing symptoms of intestinal obstruction operation was decided upon two days after admission (!). An incision parallel to Poupart's ligament showed a hernial sac containing a large mass of blood clots, a fetus about 12 weeks old, the uterine adnexa, and coils of intestines. The wound was cleaned as much as possible and tamponed with aseptic gauze. The vomiting continued, and death occurred the following day. At a post-mortem it was found that the intestinal obstruction was caused by numerous adhesions which were beyond surgical relief.

Eclampsia.—J. W. Byers³² says that the theory of toxemia as the cause of eclampsia is supported by these arguments: It covers all cases, whether albumin is present or not; the clinical history of eclampsia is that of toxemia; the post-mortem appearances favor it. Zweifel has shown that multiple thromboses are invariably found in the viscera in fatal cases, indicating the existence in the circulation of some blood-coagulating product of organic change. It has been shown that the toxicity of the blood is increased in both mother and fetus when the former presents eclamptic symptoms, and changes in the liver cells and emboli proving the existence of hepatic cells in the cardiac cavities have been found in a woman dying from the disease.

Labadie-Lagrave, Boix, and Noé³⁴ conclude, as the result of their investigations as to the urinary toxicity during pregnancy, that to cause eclampsia there is necessary not only an altered kidney, but above all a functionally insufficient liver, because most often the renal change is the result of the abnormal passage of toxins which the liver fails to destroy.

For the control of the convulsions J. C. Edgar³³ prefers chloroform, veratrum viride, and chloral, in the order named. He believes that morphine prolongs the post-eclamptic stupor and interferes with eliminative processes. If the pulse is strong

and rapid, veratrum viride is the most certain means for controlling convulsions. When the pulse is weak he employs morphine hypodermatically, chloroform by inhalation, and chloral by rectum, with stimulation if necessary. He considers rapid manual dilatation of the os and subsequent extraction of the fetus advisable as a rule; but if the internal os has disappeared and the external remains rigid, while the labor must be rapidly terminated, he favors four clean incisions from the edge of the os to the utero-vaginal junction. In performing manual dilatation, if the cervix is unyielding a cervical dilator of gauze or a hydrostatic bag should be used until a slight relaxation of the cervix occurs. In the meantime veratrum viride is most valuable to reduce pulse rate and temperature, relax the cervix, and cause prompt diaphoresis and diuresis. The child should not be extracted before the external os is completely dilated and paralyzed, as rupture of the lower uterine segment or death of the child may occur. The ordinary methods of increasing the action of the eliminative organs are advised. As a diuretic, nitroglycerin is preferred to veratrum viride; and for diaphoresis, the hot-air bath to the hot pack. Edgar has found inhalations of oxygen of great value as a general stimulant, to aid elimination from the lungs, and to prolong life during the stage of coma.

In the discussion which followed, *E. P. Davis*³⁷ expresses the opinion that eclampsia is largely preventable if special diet and preventive measures are adopted when elimination is difficult. He calls attention to the nervous symptoms, such as melancholia, which are often the first indications of such a deficiency. He believes that veratrum viride should be used only in apoplectiform cases. *Charles Jewett* advocates too early rather than too late evacuation of the uterus, believes the long-continued use of chloroform dangerous, and considers veratrum viride the most valuable drug. For cases of impending eclampsia *E. H. Grandin* favors rapid manual dilatation of the cervix, for which he considers thirty minutes sufficient, and rapid delivery, by version if possible. Barnes' bags are too slow. Gauze tamponade for six or eight hours should precede when haste is not demanded. *W. T. Lusk* advises expectant treatment, unless eclamptic symptoms are present. For dilatation of the cervix he employs Barnes' bags. For mild cases of toxemia with slight albuminuria *J. W. McLane* uses milk diet and rest in bed for part of the day, while the bowels are kept open, and the skin active by a daily bath. He does not believe eclampsia altogether preventable. In acute cases venesection is most serviceable. He believes in inducing premature labor, but delaying this, if possible, until the child is viable, as it is not damaged by the mother's condition. He favors rupture of the membranes, which gives immediate relief and can be followed by induction of labor. Barnes' bags are best for the dilatation of the cervix. Rapid manual dilatation is too severe, may bring on convulsions, and may rupture the uterus. After delivery it is well to allow some bleeding from

the uterus, to give chloroform if a seizure threatens, to give a hot pack, a hot saline enema, and morphine. McLane has not used *veratrum viride*, as he has not seen a case with a pulse strong enough after labor to employ it. *R. A. Murray* also favors rupture of the membranes to relieve tension. Venesection is next in value. He agrees with Grandin in regard to manual dilatation and rapid delivery, as does also *P. A. Harris*, who believes that children born of eclamptic mothers have diminished vitality.

G. L. Cole³³ advises, as treatment for eclampsia, venesection or *veratrum viride*, morphine hypodermatically, chloral hydrate and bromides, and absolute quiet. Induction of labor should depend upon the individual case.

Rupture of the Uterus.—C. H. Roberts²³ reports a case of rupture of the uterus, in his own practice, caused by the passage of metal dilators to aid in the removal of decidual tissue after an abortion; and one of another practitioner, due to obstructed labor from hydrocephalus, the head being born by traction but without forceps or perforation. Both cases were successfully treated by packing with iodoform gauze, as neither uterus was septic. Roberts calls attention to the value of this method in cases in which abdominal section is for any reason inadvisable.

Guillaume³⁹ reports a case of rupture of the uterus which occurred three years after a Cesarean section. The rupture took place in the eighth month of pregnancy, after severe pains had existed for about six hours. Immediate laparotomy showed that the tear was ten centimetres in length; both fetus and placenta were in the abdominal cavity. The uterus was removed *in toto* and the woman made a good recovery.

C. A. von Ramdohr¹⁴ records a case of rupture of the uterus following primary inertia. Cesarean section was followed by death from collapse. Two similar cases are recorded by H. J. Boldt.

Post-partum Hemorrhage.—In post-partum hemorrhage T. Laird²³ passes the right hand into the uterus, which should be emptied of clots, etc., closes that hand, and with the left compresses the uterine and ovarian arteries of both sides against it, the fingers grasping the left side, the thumb the right. If this does not fully control bleeding in a few minutes, a powerful styptic is applied by a sponge or absorbent cotton held in one hand within the uterus while pressure is still maintained by the other. The vessel may be compressed by pressing the uterus against the right side of the pelvis with the internal hand, leaving the other only the vessels of the left side to compress against the closed hand.

A. Olivier⁹ advocates the use of injections of a one per cent solution of sodium chloride in cases of post-partum hemorrhage.

General Septic Peritonitis following Abortion.—A. H. Tuttle¹² records a case of general septic peritonitis following abortion. Being unable to obtain a movement of the bowels,

he employed peritoneal and intestinal drainage, which was followed by recovery.

Local and General Intoxications as Predisposing Causes of Puerperal Infection.—A valuable contribution to the pathology of the puerperium, by Tullio Rossi-Doria,⁴¹ is based upon the abundant material of the Obstetrical University Hospital at Rome. According to the author the etiology and prophylaxis of puerperal infection is not as yet beyond debate, probably due to the fact that much attention is bestowed upon the infecting elements, while the organism—that is, the body threatened with infection—receives only secondary consideration. A critical investigation of every case of puerperal infection shows, however, that both the infecting element and a recipient condition of the organism are necessary for the consummation of the disease. The healthy organism possesses many natural protective properties and means of resistance, largely of a chemical character, and it must be the physician's endeavor not to weaken but to aid them whenever possible. The most potent factor in the deterioration of this protecting element is the poisoning and intoxication of the organism. The poisoning may be general or local. The former exerts both general and local effects; they lower the tone of the whole body and therefore of the genital part. The local poisoning agents act primarily upon the genital tract, which loses much of its resistant power and is thus prepared for the invasion of infection. The author defines as autoinfection an invasion of the organism from without by germs, which before they enter the body are non-virulent in character, but become infectious in the body, partly from a development of their inherent virulence, partly from the impaired resistance of the body. The prophylaxis of heteroinfection, that is, infection of a purely external origin, consists in strict asepsis; to this may be added means which enhance the resisting power of the body, and also antisepsis. The principle and advantages of antisepsis have been much over-estimated by the adherents of the auto-infective theory; they have always pointed to their power to kill germs, but that they also diminish the inherent resisting power of the body has been overlooked. The natural defence of the body against the invasion of infection consists in: (1) the secretions of the vagina and cervix, which secretions have germicidal and antitoxic properties—these secretions, therefore, must not be removed; (2) the continuity and integrity of the epithelial covering, injury of which should be avoided; (3) the vitality of the single cell elements forming and surrounding the genital tract—their destruction would therefore be a gross error; (4) the active antitoxic functions of the organic fluids which permeate the tissues; (5) the anatomical and functional integrity of those organs which neutralize and destroy the poisons which have entered or are formed in the body (liver, suprarenal capsules, thyroid gland, etc.); (6) the anatomical and functional integrity of those organs which eliminate the aforementioned poisons. It is therefore important to make

their functions normal, and, if necessary, aid or increase their working power. The methods which improve the normal resistance of the body and thus diminish the danger from auto-infection; antisepsis, which, however, is frequently abused and often produces harm instead of good; asepsis, a most important factor—these combined and carried out in a rational way are the best guards against puerperal infection.

Puerperal Sepsis.—Saft.⁴ At the institution for the instruction of midwives in Breslau the prophylaxis consists in the thorough disinfection of the hands and instruments; the vagina, however, is let alone, so as not to interfere with the bactericidal power of the vaginal secretion. Among 879 confinements one death occurred from sepsis. The high mortality (21.4 per cent) is explained by the careful observation of the temperature; every case in which the rectal temperature was above 38° C. was classed as abnormal. The best results were obtained in those cases in which only abdominal palpation was employed; instrumental deliveries showed the highest mortality. In opposition to Leopold, Saft writes against the disinfection or cauterization of infected areas: intrauterine irrigation is condemned in vigorous terms: sustaining treatment is advised.

Two severe cases of puerperal sepsis operated upon by F. T. Bicknell³³ recovered after hysterectomy by the vaginal and combined routes respectively. He urges the value of this operation in certain cases.

Vaporization of the uterus, used mainly for the arrest of uncontrollable hemorrhage, was employed with good results by Kahn⁴² in nine cases of puerperal endometritis due to the retention of secundines. The steam was administered at a temperature of 100° C. for two minutes, after which the temperature was raised to 115° C. for one-quarter to one minute. Evil consequences were not observed; only a few patients complained of some pain. In most cases immediate amelioration of symptoms was noted. Before vaporization the retained placental masses and blood coagula must be removed. The after-treatment consists in intrauterine irrigation for three days and the removal of scalded tissues.

Peripheral Neuritis following Delivery.—A case of peripheral polyneuritis following delivery is described by E. G. Cutter.¹² Recovery in four months.

Hemianopsia in Puerperal Amaurosis.—Lehmann²⁹ endeavors to prove that the visual disturbances accompanying eclampsia are of cortical origin. In the case reported amaurosis developed post-partum without eclamptic convulsions. It began with hemianopsia, followed by amaurosis with intact pupillary reaction; a central amaurosis remained for a short time.

Biliary Colic during the Puerperium.—Eiermann⁴³ reports the case of a primipara who developed, five days post partum, the most excruciating epigastric pain. The pulse was rapid, temperature slightly raised. The symptoms were clearly those

of biliary colic, and the correctness of the diagnosis was soon proven by the appearance of icterus and the altered condition of stool and urine.

Ovarian Abscess after Confinement.—Bröse⁴⁴ reports the case of a woman who after confinement had a high temperature and severe abdominal pain. The temperature after a while became normal, but the pain continued for three months, at which time he operated. He found both ovaries the seat of abscesses, and the left tube contained pus. The patient made a good recovery.

Excretion of Sulphuric Acid and Fecal Putrescence of Puerperæ.—A quantitative analysis by Neumann⁴⁵ of the urine from four puerperæ showed that during the first ten days of the puerperium their excretion of sulphates was diminished in the urine, but that the intestinal tract contained them in increased quantities. To prevent an unhealthy condition of the bowels thorough evacuation should be attended to during and after labor.

Deciduoma Malignum following Hydatid Mole.—Lindfors⁴⁶ performed vaginal hysterectomy in a woman who gave a clear history of a recent hydatid mole. She was in very poor condition from long-continued loss of blood. A curettement which preceded the hysterectomy showed that the uterus contained a malignant growth. The extirpated uterus was enlarged, but was normal in color and consistence except for a growth on the fundus which was soft and reddish-blue in color. Microscopical examination of this specimen proved beyond doubt that the case was one of deciduoma malignum. The woman died on the fifth day.

Syphilis as a Cause of Abortion.—J. A. Quimet⁴⁷ says that syphilis acts as a powerful cause of abortion by producing lesions in the fetus or placenta. Such abortion usually occurs at about the seventh month. The father alone being syphilitic may transmit the disease to the product of conception without infecting the mother, such transmission to the fetus being more likely the nearer the onset of the parental syphilis approaches the time of impregnation. When both parents are syphilitic the infant rarely escapes. In cases of maternal syphilis contracted before pregnancy the child's chances of escape are the greater the more distant the date of the mother's infection; in cases acquired during pregnancy the child's escape becomes more probable the nearer to full term the disease begins. The child inheriting syphilis may manifest its lesions at birth or only after several months or years. The disease impresses no particular characteristic upon the sequelæ of labor. Mercurial treatment begun at the commencement of pregnancy in a syphilitic woman may permit her to carry the child to term, to deliver it alive though syphilitic, at times living and without lesions, and occasionally it may continue so. When the father is syphilitic a healthy child may be born at term if the mother submits to mercurial treatment during pregnancy.

Syphilis by Conception.—Twenty-six cases of syphilis are

reported by J. A. Shaw-Mackenzie,⁴⁴ who says that they tend to support the view that either the immunity of so-called "syphilis by conception" is not so complete as is generally held, or that a primary modified infection of the mother is probable in every case. No doubt immunity may, and does, occur in either case. The often rapid disappearance of obvious manifestations subsequent to delivery suggests that subinvolution itself contributes to immunity, partial or complete.

Intrauterine Fractures of the Upper and Lower Extremities.—Hereditary syphilis accompanying a neuropathic contraction of the extremities is assigned by Watjoff⁴⁵ as a cause of intrauterine fractures.

Congenital Dislocations.—Cases of congenital displacement of both hips are reported by R. J. Pye-Smith⁴⁶ and by E. English.⁴⁷

Prolonged Retention of Fetus.—Lavabre and Pollosson⁴⁸ record the retention, in a case of uterine pregnancy, for five and a half or six months, of a slightly mummified, not macerated, fetus whose death was caused, as shown by the placenta, by an albuminuria, of which the existence was not suspected during pregnancy.

Monstrosities.—E. H. Root⁴⁹ reports the birth of a composite monster, a monomphalic ischiopagus. Traction on a leg of each fetus brought the monster down until the other limbs appeared, when the fetuses were separated at the pelves and delivery accomplished after decapitation.

A well-marked case of exencephalia, with entire absence of parietal and occipital, and rudimentary development of temporal bones and spinal cord, and other bony defects, is recorded by C. N. Ballard.⁵⁰ Cerebellum and medulla were absent, and the whole portion of cerebrum present was contained in a sac of meninges falling back between the shoulders. He believes the malformation to be due to a fall at the sixth week of pregnancy, which was followed by all the signs of threatened abortion.

W. T. Councilman⁵¹ rejects completely maternal impressions as etiological factors in the development of monstrosities.

Tetanus Neonatorum.—G. C. Taylor⁵² publishes the history of a case of tetanus neonatorum which proved fatal. It developed eight days after a normal delivery and two after the separation of the cord.

Ophthalmia Neonatorum.—A. A. Hubbell⁵³ publishes a plea for the general use of prophylactic measures against purulent ophthalmia in the new-born, on account of its severity and comparative frequency. He recommends Credé's method with two per cent nitrate of silver.

Hereditary Infantile Multiple Sclerosis.—A case of multiple sclerosis, described by Eichhorst,⁵⁴ demonstrates the occurrence of this disease in infants. The hereditary possibility of this disease could also be shown; then the mother of the child suffered also from multiple sclerosis.

Obstetric Paralysis.—G. L. Walton⁵⁵ agrees with Carter's

view that obstetrical paralysis is due to stretching of the brachial plexus, and believes with Oppenheimer that the clavicle is the point against which it is pressed. Both of these theories fail to account for the occasional involvement of the nerve to the infraspinatus. Walton thinks that this is stretched independently, the distal point of fixation being the suprascapular notch or the external border of the spine of the scapula. He offers this explanation of the mechanism by which the brachial plexus is stretched: In an L. O. A. case the right shoulder is delayed at the pelvic brim to the right of the median line, while the head, passing through the pelvic strait, is being both separated directly from the shoulder and rotated so as to turn the face away from the right shoulder, pressing the plexus against the clavicle and increasing the distance between the points of emergence of the nerve roots from the spinal column and the suprascapular notch. This theory is corroborated by the statistics which Carter collected, the paralysis affecting the right arm in L. O. A. cases, the left in R. O. A. In twenty-three cases at the Massachusetts General Hospital, however, eleven were of the right arm, ten of the left, and two were breech cases. This does not correspond with the relative frequency of L. O. A. and other positions, and may show that rotation is unimportant and delay of the shoulder may, by causing lateral flexion, be equally responsible. As regards prophylaxis, the writer advises hastening labors which are delayed in the second stage.

GYNECOLOGY AND ABDOMINAL SURGERY.

A New Method of Obtaining the Urine Separately from the Kidneys in Women.—Rose⁴³ criticises the various methods so far in vogue and recommends a new one, which, he says, has the following advantages: great certainty, simplicity of instrumentarium, avoidance of infection of one ureter from the other, avoidance of anesthesia. Rose employs a speculum one finger long, with a lumen of about one centimetre: this is introduced into the bladder, after previously immunizing the urethra, for a distance of five and a half centimetres, and is placed directly upon the ureteral opening. Its principle, therefore, consists of a direct elongation of the ureter. Pelvic elevation or the genupectoral position is used. The practicability of the method has been demonstrated upon the cadaver and living subject.

Movable Kidney.—G. W. Jarman⁴⁵ reports a case of movable kidney, probably multilocular cystic, removed by lumbar incision. The patient was doing well.

Renal Calculus.—E. Secchi⁴⁶ believes that even in cases of calculous septic pyelonephritis with dilated kidney a simple nephrectomy may give good results without being followed by a urinary fistula. Endorenal irrigation to facilitate the egress of the calculus may be efficacious, but it may occasionally have the effect of impacting the stone in some one of the depressions

in the renal parenchyma which are so often found in calculus of the kidneys.

Double Ureter.—A case of duplication of the left ureter throughout its entire extent, beginning at the kidney with a double pelvis and ending in separate ureteral orifices at the bladder, is recorded by Otto Ramsay.²²

Uretero-vesical Anastomosis.—For uretero-vaginal fistula following hysterectomy Rouffart¹⁸ performed uretero-vesical anastomosis with perfect anatomical results, though death occurred from renal disease. The patient had a single kidney.

Restoration of the Urethra.—Leguen,⁶⁰ in restoring a urethra completely destroyed by phagedenic ulceration, employed flaps taken from the vagina, vulva, and labia minora. The mucous surfaces of the flaps were sutured together around a sound the size of the desired canal and the denuded surfaces sutured together. The vagina was contracted by this, but still remained sufficiently large. The urethra extends to below the clitoris and presents a curve beneath the symphysis. The patient retains her urine during the day, though not at night.

Surgical Injuries to the Ureters.—Studying five cases in which uretero-cystotomy has been performed, and two of uretero-ureteral anastomosis, J. M. Baldy¹⁰ decides in favor of the former operation for the treatment of a divided ureter. He says that in the large majority of cases this accident will occur below the ileo-pectineal line, when it is amenable to treatment by uretero-cystotomy. Neither immediate nor secondary obstruction has thus far occurred; and kidney infection has not taken place, as the opening into the bladder is not gaping and its high position protects it from septic invasion and back pressure during contraction of the viscus.

Cystoscopic Vesical Examination.—Cystoscopic examination of the bladder is advised by J. M. Hundley¹⁷ as a routine practice in cases presenting vesical symptoms of whose cause there is any doubt. A brief description of the instruments employed in cystoscopic examination and ureteral catheterization is given by J. W. Long.³⁰ He calls attention to the fact that many so-called cases of cystitis, especially in young women, are not general inflammations of the vesical mucosa, but hyperemia or limited inflammations, many of which are rapidly cured by mild astringent solutions applied through the cystoscope. If such astringents as silver nitrate fail in chronic cases, the application of ten per cent gelatole of ichthyol by the vesical balloon is employed. A favorable result by each method is reported.

Total Exstrophy of the Bladder.—G. Dalle Ore⁶⁸ prefers the method of Thiersch in operating for this condition. It consists essentially in the formation of flaps taken from the sides of the defect where the skin is thicker, and not so near to the peritoneum, as in the umbilical region. The flaps should be sufficiently large for each to cover the entire defect. The first is formed as follows: The incision is begun at the upper margin of the defect, continued along the lateral border, and

ends below the inferior margin. The external incision is made parallel to the first and at the proper distance. The flap is detached from the subjacent tissues in its entire length, leaving the upper and the lower strips intact, and a piece of gauze is placed beneath it to prevent reunion. The flap is allowed to granulate, and twenty days later the upper strip is incised and the flap drawn crosswise over the inferior portion of the defect and sutured to its opposite and freshened margin. The lower two-thirds only of the defect are covered by this flap, in order to allow for shrinking. When it is adherent a second one is formed from the other side in the same manner as the first, except that its lower strip must be at the level of the point of insertion of the inferior flap. After twenty days it also is incised above, carried across the upper portion of the bladder, and sutured to the opposite freshened surface of the defect as well as to the superior margin of the first flap, which has also been freshened. The epispadias is then corrected by three operations.

Tuberculosis of the Bladder.—J. O. Polak¹⁴ reports the complete cure of a case of tuberculosis of the bladder by direct application of silver nitrate and irrigation with half-strength Thiersch solution.

Demonstration of a Hairpin in the Female Bladder by means of the X-rays.—Seiffart⁴⁵ records the case of a girl, 18 years old, with a history of chronic cystitis of about a year's standing, for which washing the bladder would give only temporary relief. Examination with a urethral sound demonstrated the presence of a foreign body in the bladder, whereupon the mother of the young lady volunteered the information that about a year ago she had accidentally swallowed a hairpin (!). An X-ray photograph showed the presence in the bladder of this hairpin, which was then removed. The sensitive plate was introduced into the vagina, after dilating this organ, which was covered by a rubber preservative to prevent the access of moisture.

Alcohol as a Permanent Dressing.—Salzwedel⁶¹ has obtained most encouraging results in the treatment of phlegmons, lymphangitis, bursitis, and inflammations of the breast with alcohol. This dressing also relieves pain in inflammations accompanying cancer and in gonorrheal joint affections. Finally, it is advocated in infected wounds and such as cannot be aseptized.

Disinfection of Lines of Suture by Alcohol.—R. Blondel⁶² disinfects the operative field by careful brushing with soap and water, or preferably with a mixture of equal parts of saturated solution of ammonium carbonate and borax, washing with ether, brushing with ninety per cent alcohol two to three minutes and with 1:1000 bichloride for the same time. At intervals of not more than two days, after the operation, the region of the wound is washed gently with ninety per cent alcohol. If, in spite of these precautions, infection of a suture is observed,

the suture is removed and the place which it occupied is washed with alcohol twice a day.

Buried Permanent Suture in Abdominal Surgery.—C. P. Noble⁶³ advises the closure of the abdominal wound, which should be made to one side of the linea alba, through the rectus, by buried silkworm gut. The sutures, sterilized by boiling one-half hour, are introduced at the level of the aponeurosis of the abdominal muscles, pass through this, the rectus, and peritoneum, and emerge in a reverse way. Three sutures to an inch should be used, and tied in a square knot with an extra tie and cut short. The silkworm gut should be light in weight and aseptic. The subcutaneous fat and skin may be closed with interrupted silkworm gut, or preferably with aseptic catgut, in two or more layers, one uniting the fatty tissues by a running suture, the other the skin by the intracuticular stitch.

Suppuration following the Use of Sterile Catgut.—Suppuration following the employment of sterile catgut is, according to Poppert's⁶³ investigations, due to inherent chemical substances. There is no method known which can free catgut from this chemical body.

Removal of the Appendages by the Abdominal Route without Previous Ligature.—P. Delbet⁶⁴ believes that pains which follow laparotomy are due to : constriction of and traction upon the pedicles by ligatures *en masse* ; slight infection of sutures, not sufficient to lead to grave accidents, but enough to cause the formation of exudates ; persistence of a portion of the inner extremity of the diseased tube ; adhesions between the pedicles and the intestine or bladder ; or malpositions of the uterus. In order to overcome these difficulties he proceeds as follows, with the patient on the inclined plane, after freeing adhesions and drawing the appendages into the abdominal wound : When the adnexa have been liberated without rupture, when the hands are believed to be still aseptic, and when there is no exposed septic surface, he ties the entire utero-ovarian pedicle with a single suture passed through the broad ligament near its outer end, then dividing the rest of the ligament without ligaturing. In the absence of the above conditions he divides the ligament without any previous ligature from without inward, an assistant clamping the blood vessels after each is divided, and removes the tube as far internally as necessary. Its internal orifice is then cauterized, the blood vessels tied individually, and the narrow wound in the broad ligament closed by a Lembert suture so as to avoid leaving raw surfaces, the inner portion being united to the round ligament, and all sutures being covered by peritoneum. An abdominal hysteropexy, to correct malposition of the uterus, follows.

Accidents following Removal of the Appendages.—In one of the cases described by Keiffer¹³ death occurred after hemorrhage due to sarcomatous degeneration at the uterine cornu following a salpingectomy of two years before. The

rupture occurred during defecation. In another case a purulent cystitis was caused by the elimination of an infected silk suture of the broad ligament through the bladder a year after operation. A similar occurrence was noted three years after ovariectomy, the suture coming from the pedicle.

Pyosalpinx.—Kalabin³⁹ publishes a case of ablation of the uterine appendages for pyosalpinx in a woman 38 years of age. After the operation she suffered from uncontrollable menorrhagia, which could be arrested only by intrauterine injections of liquor ferri subsulphatis. She also presented a series of nervous symptoms which made life almost unbearable.

Fibroid of the Fallopian Tube.—A myoma developed around and in the Fallopian tube has been removed by J. W. Taylor.²¹

Ovary.—From observations upon five hundred cases in which both ovaries had been removed, B. Sherwood Dunn³⁸ found that seventy-eight per cent suffered a notable loss of memory; sixty per cent had flashes of heat and vertigo; fifty per cent changed in character, becoming more irritable; forty-two per cent suffered from mental depression, ten per cent bordering on melancholia; seventy-five per cent had diminished sexual desire; thirteen per cent were not relieved of pain by the operation; thirty-five per cent increased in weight (some became abnormally fat); in twelve and one-half per cent the voice became more masculine; fifteen per cent suffered from minor skin affections, and in some the stomach rejected food or gastric fermentation occurred. For these and other reasons he urges the conservation of small healthy portions of the ovaries when possible.

Ovarian Tumors.—J. T. Binkley, Jr.,¹⁴ records the removal of a cystic tumor, the fluid in which weighed one hundred and seventy-five pounds and the solid portion fifty pounds. The case terminated fatally, probably, he thinks, from too rapid withdrawal of the fluid.

N. G. Bozeman¹⁴ describes an ovarian tumor with no connection with the pelvic organs and separated from them by the small intestines. As both ovaries seemed normal and healthy, he infers that the tumor was developed from a supernumerary ovary.

The removal of an ovarian dermoid is reported by E. E. Kelly.⁶⁶

W. J. Gow⁶⁷ states that in six cases of complete procidentia in young virgins he found three complicated by ovarian tumors. He believes it probable that in patients of this class there is a distinct causal relation between the development of ovarian new growths and the occurrence of prolapse.

P. F. Mundé⁶⁸ records the enucleation of an ovarian dermoid from the uterine cavity. The patient had passed two bunches of hair from the vagina, and another was found protruding from the external os. He believes that the cyst originated in the left ovary, between the layers of the broad ligament, became inflamed, and ulcerated through the uterine wall. Mundé

also describes a case of double ovarian abscess with the right ovary adherent in the right iliac region, simulating appendiceal abscess. Double ovariectomy was followed by death.

A case of multilocular ovarian cyst, in which torsion of the pedicle and rupture of the cyst wall took place, is the subject of a communication by V. Faucon.⁶⁹

Two suppurating ovarian dermoid cysts were successfully removed by Alfred Smith.⁷⁰

A. C. Butler-Smythe⁷¹ records the removal of a rapidly growing ovarian cyst which had burrowed between the uterus and bladder, in a patient who had been recently confined and whose other ovary had been removed eighteen months previously. Recovery.

J. R. Goffe⁷² reports the successful removal of a large fibrosarcoma of the ovary.

Ovariectomy under Local Anesthesia.—H. J. Boldt⁵³ records the removal of an ovarian tumor from a patient who had cardiac disease, with no anesthesia except locally during the cutaneous incision when about ten drops of four per cent solution of cocaine were used. Pain seemed severe after the abdomen was opened, but the pulse remained unchanged and recovery was smooth.

Congenital Absence of Ovaries, etc.—J. Ramage⁷² describes a case of congenital absence of the ovaries with rudimentary uterus, a condition which he discovered in a married woman 23 years of age. He advises a careful examination in all cases of continued amenorrhea, such as existed in that reported, and deprecates the routine practice of prescribing medicines for such a condition prior to examination.

Ovarian Extract.—Jacobs⁷³ finds, in regard to ovarian extract, that by its use the disagreeable symptoms of the natural or artificial menopause are relieved or disappear. Rapid improvement is constant in cases of chlorosis and of dysmenorrhea. The extract undeniably influences the psychic troubles accompanying genital lesions. It rapidly overcomes the metrorrhagias of the menopause not connected with new growths. It causes a rapid and constant improvement in the patient's general condition, and its therapeutic action upon the nervous system is manifest from the first day. The results of the treatment are usually apparent on the second or third day.

The Internal Secretion of the Ovaries.—G. E. Curatulo and L. Tarulli⁷⁴ record the result of their extensive clinical and experimental researches into the influence of the ovaries upon the organism, aside from their function of ovulation. Their work is divided into three parts. In the first they give a brief history of castration, followed by the results of their experiments upon animals to ascertain the effects of removal of the ovaries. These they sum up as follows: Ablation of the ovaries has a notable influence upon organic metabolism. The curve of the elimination of phosphates by the urine is considerably lowered after castration. The curve of the elimination of nitrogen presents slight oscillations without decidedly rising or

falling. The carbonic acid eliminated by the respiration and the oxygen absorbed diminish markedly up to a certain point and then remain stationary. The curve of the weight of the animal rises considerably during the time in which it is kept under observation (five to six months). In bitches, in which the elimination of phosphates was much diminished, the subcutaneous injection of ovarian juice was followed by a marked increase of phosphates, which was even greater than it had been before removal of the ovaries. The increase was out of proportion to the amount of phosphates contained in the fluid injected. Removal of the uterus and ovaries apparently produced no different results from removal of the ovaries alone. In the second portion of the work the scientific reasons are given for the phenomena observed after castration. As a result, the authors conclude that the ovaries, as well as other glands of the body, have, in accordance with Brown-Séquard's theory, a species of internal secretion. They continually discharge into the blood a secretory product whose chemical composition is as yet unknown, and whose chief property is the favoring of oxidation of phosphorated organic substances, of carbohydrates and fats. It follows that, owing to their removal or their non-functioning, as in the periods before puberty and after the menopause, there will be an increased retention of phosphorus, causing an accumulation of calcareous salts in the bony skeleton and the well-known increase of fat which follows castration or the menopause. In the third part of the work the authors report the result of a series of experiments made with the object of producing osteomalacia by the injection of ovarian juice and the fermentum nitricum. This was done to ascertain whether the theory that osteomalacia is due to a hypersecretion of the ovarian fluid is tenable, or whether Petrone's hypothesis that it is due to the action of a special ferment is correct. The results were negative; still the authors think that castration may prove a valuable resource in cases of mollities ossium where other means have failed to give relief. While it can certainly not be expected to cure the deformity of the bones, it may diminish suffering and restore solidity to the bony tissues.

Acute Swelling and Hyperemia of the Ovaries.—S. Gottschalk^{7b} draws attention to a form of acute ovarian swelling which is of both theoretical and practical importance. The typical history of such a case, of which a number are reported, is about the following: A woman applies for treatment for persistent menorrhagia. The uterus is somewhat large, the adnexa are normal. The treatment consists in curettement with the sharp spoon. Convalescence is uninterrupted, there is no fever, and when the patient is discharged the genitals present nothing abnormal. Three weeks later, at the time when menstruation should appear, she complains of acute pelvic pain and states that until now she has been in excellent health. Examination reveals enlarged ovaries and tubes, the former the size of an orange. Rest in bed, Priessnitz applications, and warm vaginal

douches give relief. Menstruation appears a few days later, and subsequent examination shows both ovaries and tubes normal in size. Gottschalk explains this phenomenon as due to the incomplete regeneration of the uterine mucous membrane since the preceding curettement, so that, instead of a menstrual flow, there results an acute hyperemia of the ovarian vessels and probably an extravasation of blood into the lately ruptured Graafian follicles. The author believes that these cases probably constitute a large number of so-called cases of extrauterine pregnancies which are cured by morphine injections. These cases also teach the lesson not to curette with the sharp spoon, but to use the dull or sharp curette; the latter always leaves a certain amount of mucous membrane, through which a more rapid regeneration of the mucous membrane is effected.

Retrodisplacements of the Uterus.—The treatment advised by S. Bonnet⁶⁰ for retrodisplacements of the uterus may be summarized as follows: For simple reducible cases, pessary or Alexander's operation; if with metritis, a curettement should be performed; if slight prolapse exists, restoration of the perineum and vagina; for severe prolapse, Alexander's operation combined with restoration of the vagina and perineum. Shortening the round ligaments is preferable when slight pelvic lesions are present; but in cases of pelvic suppuration, old and severe inflammations of the appendages, uterine or periuterine tumor, vaginal or abdominal hysterectomy followed by ventrofixation, if desired, is indicated. After the menopause an old irreducible retrodeviation is best treated by vaginal hysterectomy.

H. A. Kelly⁷⁶ says, in discussing the subject of backward displacements of the uterus, that when the discovery of the flexion is the accident of an examination, or where the patient is distressed simply because she knows that the uterus is "out of place," no treatment should be advised. A pessary often relieves the local symptoms of the displacement, not by correcting it, but by checking its tendency to increase. Retroversions and retroflexions are rarely cured by the use of pessaries. Soft-rubber ring pessaries should never be used, as they soon become foul and produce irritating discharges. The hard-rubber ring, though more painful to introduce, is less apt to press on tender points and so is more easily worn than other forms, and is most employed by Kelly. He finds that the Hodge or Hodge-Mundé does best in nulliparous women; in parous women, when the vaginal outlet is somewhat relaxed, the cradle pessary is the best and often the only one which will stay in place. When there is no lateral disease in the pelvis, and where the uterus is movable and the vaginal outlet not broken down, the following plan of manual reposition may be used a few times, in the hope of effecting a cure by simple means: First, after careful evacuation of bladder and rectum, the cervix is caught by a pair of tenaculum forceps and drawn down to the vaginal outlet; by this, although the displacement is increased, the angle of flexion is straightened out. Second, with the index finger in the rectum,

the fundus of the displaced uterus is pushed forward. Third, the cervix, held by the tenaculum forceps, is pushed high up into the sacral hollow, into the place previously occupied by the retroflexed fundus. Fourth, if an assistant will hold the cervix in this position, the operator can easily bring the fundus into extreme ante flexion by grasping it bimanually through the vagina or rectum and the abdominal walls. If the patient is sensitive or the abdominal walls thick an anesthetic may be necessary. If the fundus is with difficulty dislodged from the utero-sacral hollow the patient may be put in the knee-breast position, so as to inflate the rectum with air while pushing the fundus forward and carrying the cervix backward, bringing the fundus into extreme anteversion later after putting her in the dorsal position. The uterus must be maintained in extreme ante flexion until the next treatment by packing the anterior fornix with pledgets of cotton saturated with boroglyceride and a wool tampon below. The posterior fornix is left empty. Operative measures are to be resorted to for the relief of retroflexion only in those cases in which there is good reason to believe that the latter seriously interferes with the patient's health and comfort. If such a case occurs in a woman who has borne children, the vaginal outlet should always be restored, if broken down, as the suspensory ligaments formed by abdominal suspension will otherwise inevitably yield. Of the operative methods, those which promise the best results are that of Pryor, acting through the vagina on the cervical end of the uterus in order to produce enough scar tissue about the utero-sacral ligaments to hold the cervix well back in the pelvis; that of Pagenstecher, which endeavors to accomplish the same thing by suturing and shortening the round ligaments; and the Alexander operation as performed by Edebohls. Kelly, however, prefers abdominal suspension by two silk sutures, one passed through the peritoneum and subperitoneal tissue one or two centimetres above the lower angle of an incision three to four centimetres long made just above the symphysis, and through the fundus one or two centimetres behind its highest point, then emerging through the peritoneum and subperitoneal tissue of the opposite side at a point corresponding to that of entrance. The second suture is passed a centimetre higher on the abdominal wall and a half-centimetre below the first on the posterior surface of the uterus. The abdominal incision may need to be made longer in stout women. Kelly's article gives a full description of the technique of the operation. Between October, 1889, and October, 1896, he has performed it two hundred and nineteen times in the Johns Hopkins Hospital and his private hospital, with no death. He has heard of no case in which hernia or any serious interference with any function of the bladder followed; he has heard of pregnancy occurring in fourteen cases, in only one of which was any difficulty attributed to the operation, this being a case in which prolonged suppuration in the wound caused such dense adhesions to the

fundus as to necessitate a forceps delivery. Four failures have been noted.

W. R. Pryor⁷⁷ considers Alexander's operation, after breaking up adhesions of the retroposed uterus through a vaginal incision, a useless complication and liable to cause hernia. Thorough curettage, angular amputation of the cervix, and Emmet's or Hegar's colpoperineorrhaphy are sufficient. If the vaginal operation is performed the plastic work must be postponed until all vaginal incisions are healed. He believes that most vaginofixation operations are devised in ignorance of the possibilities of plastic work, which will relieve any case of acquired movable retroposition. An operation which fixes the body of the uterus interferes to some extent with the mobility of the organ and thus with pregnancy. He advocates the cul-de-sac operation for adherent retroposition with hydrosalpinx, broad-ligament cyst (small), occluded tubes, ovarian apoplexy, or cystic ovaries; and hysterorrhaphy for adherent retroposition with pus focus, large broad-ligament cyst, ectopic gestation, ovarian abscess, ovarian cyst, or purulent salpingitis.

In a paper read before the International Congress at Geneva, G. M. Edebohls^{60, 63} pronounces shortening the round ligaments the only operation by which the retrodisplaced uterus can be brought into normal anteversion without establishing pathological adhesions. It is as safe and successful as other operations, and absolutely free from disturbances of pregnancy and labor. It does *not* compare in efficiency with ventral fixation of the uterus as a prolapsus operation. It is indicated: (a) in all uncomplicated cases of retroversion, retroflexion, and excessive mobility of the uterus requiring operative treatment; (b) in extreme and aggravated cases of antelexion; (c) in cases of retroverted, antelexed uteri without adhesions; (d) in simple prolapse of the ovaries when that condition calls for treatment; (e) in cases of adherent retrodisplaced uteri, with or without adhesions of tubes and ovaries, these organs being otherwise in condition to call for their conservation. The adhesions are first to be severed by colpotomy, median celiotomy, or an incision through the peritoneum at the internal ring.

The basis of a paper by Buschbeck⁴ is the material of Leopold's clinic in Dresden; in all, 77 cases came to operative treatment. This number may seem relatively small, but Leopold adheres to the maxim that operative treatment for retroflexion is indicated only after all other therapeutic measures have been vainly tried. In 54 cases ventrofixation after Leopold was performed, vaginal fixation in 15 cases, and shortening of the round ligaments in 8 cases. It was possible to examine 53 women as to final results. The results of ventrofixation were very favorable. In 72 cases, including those formerly published, only one failure was noted. Pregnancy occurred 11 times (32 women were castrated), 9 times normal delivery at full term, twice miscarriage; 13 cases of vaginofixation, permanent results only 4 times; 4 normal confinements: 6 women were examined in whom shortening of the round ligaments had

been performed—in 2 of these cases the malposition recurred, 3 $\frac{1}{2}$ became pregnant. Leopold prefers the shortening of the round ligaments by the vaginal route to the Alexander operation. The best results were obtained through ventrofixation.

Mackenrodt⁷⁹ states that mobile retroflexion of the uterus complicated by prolapse forms a proper indication for vesicofixation.

Carl Beck⁵¹ suggests the following method of hysteropexy, which has been successfully employed in one case: Through the usual incision through the linea alba a loop of one round ligament is isolated by making an incision about two inches in length on each side of it, beginning near the uterine origin, and dissecting the ligament loose. It is then drawn out through the wound by an aneurism needle, the peritoneum, muscles, and fascia successively united beneath it, so that it finally rests upon nearly the whole abdominal wall, and the rest of the abdominal incision is united above it in the usual manner.

Treatment of Prolapse of the Genitals (French Congress of Surgery).—*G. Bouilly*^{64, 60} considers medical treatment applicable only in recent and light cases, and indicated only after labor for subinvolution with temporary hypertrophy of the uterus and relaxation of its ligaments. The pessary is only a makeshift in old and confirmed cases. It is indicated when surgical treatment is contraindicated or refused. It is useful in cases of uterine rather than vaginal prolapse, as it requires a sufficiently firm perineum for its retention. In order to avoid exaggeration of the vaginal relaxation it should be as simple and small as possible. The value of direct massage, elevation of the uterus, and perineal gymnastics is still *sub judice*. Of radical treatment, restoration of the vagina and perineum is the fundamental principle, often efficient alone, and at times requiring a complementary hysteropexy, hysterectomy, or shortening of the round ligaments. Anterior colporrhaphy alone seems useless, and episiorrhaphy is worthless as hiding, not curing, the lesions. For vaginal or utero-vaginal prolapse without elongation of the uterus, Hegar's colpoperineorrhaphy with individual modifications is the method of choice. If the cystocele is large and broad this operation is difficult and may fail on account of tension upon the sutures. In this case Fehling's double colporrhaphy, leaving between the surfaces denuded a band of healthy mucosa, is advisable. Shortening the round ligaments is accessory to restoration of the vagina and perineum, and is most applicable in cases with retrodeviations. For advanced utero-vaginal prolapse high amputation of the cervix with plastic vaginal operations is recommended. Hysterectomy is justifiable only after the menopause or when conception is improbable. Alone it may succeed in some cases; usually it must be combined with plastic operations upon the vagina. *L. G. Richelot* advises colporrhaphy if the vaginal prolapsus is simple, the uterus small, and the exuberance and flaccidity of the walls not extreme. If the lower segment of the uterus is hypertrophied high amputation of the cervix

should precede colporrhaphy. This is the best operation in advanced cases with large uteri protruding or nearly so. Fixation of the vagina or uterus, and hysterectomy, are only auxiliary to colporrhaphy. *Reynier* cites three cases of prolapse of the uterus in virgins to show that it may occur without perineal laceration, and especially by relaxation of the levator ani. One case shows the value of massage and hydrotherapy in restoring the muscular tonicity. *E. Schwartz* favors posterior colpoperineorrhaphy, preceded, when cystocele is marked, by elytrorrhaphy. He advises vaginal hysterectomy when the prolapse is directly connected with the presence of a tumor. If retro-deviation is present, with no other indication for hysterectomy, abdominal hysteropexy in severe cases, Alexander's operation in milder, with restoration of the vagina and perineum, give the best results. *Péan* says that in simple uterine prolapse aluminum pessaries cure the deviation in time; they also relieve the suffering in many cases combined with cystocele or rectocele. Otherwise, or when complicated with complete laceration of the vulva or perineum, stem pessaries may be used or colpoperineorrhaphy performed, with anterior elytrorrhaphy if the cystocele is large. Hypertrophy of the cervix demands supravaginal resection. This is also effective when retro-deviation is present. Vaginal hysterectomy is indicated when there is intractable endometritis, or chronic metritis with frequent pelvi-peritonitis, especially after the menopause, or when the adnexa are so involved as to prevent fecundation or threaten life. If an operable interstitial tumor of the uterus is present it should be removed in this way before treating the prolapse. With multiple fibroids or malignant growths total castration should be done. *P. Delbet* does not believe that hysterectomy alone will cure prolapse. *A. Boursier* thinks that recurrences after surgical treatment for prolapse of the uterus are due rather to the general atonic condition of the patients than to failure of the operation itself. *Jacobs* has treated five cases of total prolapse by ligamentous trachelopexy and two by colpexy, with six cures and one death from intercurrent disease after the operation. *J. Boeckel* says that before the menopause vaginal hysterectomy should be performed for prolapse only when plastic operations have failed, when the duration and extent of prolapse render failure of these methods probable, when hypertrophy of the uterus will lead to recurrence, or when the prolapse cannot be reduced. Vaginal hysterectomy should always be followed at once by perineorrhaphy. After the menopause the operation has no contraindications. *Routier* says that hysterectomy should be done for prolapse if the uterus is diseased. Tumors of ovaries or tubes should first be removed. Pessaries with perineorrhaphy may cure. He usually employs anterior and posterior colporrhaphy and perineorrhaphy. *Gérard-Marchand* cites two cases of incontinence of urine cured by colpoperineorrhaphy, which relieved the prolapse causing it. *Lejars* says that the vesical and rectal walls prolapse as well as the vaginal, so that cystorrhaphy, rectorrhaphy, and colpor-

rhaphy should be done at once in mild cases of prolapse. Hysterectomy is rarely required. *Tuffier* considers that certain cases of prolapse are due to the general condition of the patients. *P. Delbet* says that hysterectomy alone is not curative of prolapse and must be supplemented by perineorrhaphy; when hysterectomy is indicated he performs colpocystopexy. *Bilhaut* advises hysteropexy and anterior colporrhaphy for the accompanying cystocele, and later colpoperineorrhaphy for the rectocele when the cicatrix of the first operation is firm. *Delauney* believes in performing all these operations at one sitting. *Demoulin* thinks the increase in mortality from vaginal hysterectomy for prolapsus over that for other lesions is due to infection of the urinary passages which often exists in cases of complete prolapsus. *T. Jonnesco* declares himself an absolute partisan of vaginal hysterectomy, considering plastic operations upon the vagina and perineum inefficacious. He has performed eight hysterectomies with perfect results, one being supplemented by plastic work. He believes that plastic operations upon the vagina are usually followed by retroversion. *Berrut* advocates prosthesis in the treatment of prolapse, hoping that after reduction mechanical support of the uterus will allow the return of its natural tonicity and save the organs of generation.

Examination of Uterine Scrapings.—*Hunter Robb*⁸¹ writes of the importance of systematic microscopical examination of uterine scrapings and of excised pieces as an aid to diagnosis. His article includes the analysis of one hundred cases in which this plan was tried.

Intrauterine Stems.—The indications for the use of intrauterine stems are given by *Pichevin*⁸² as cicatricial contractions of the cervico-uterine canal, sterility, and dysmenorrhea, with painful internal os and marked antelexion. Contra-indications are: dysmenorrhea with normal uterine canal, acute or subacute metritis or parametritis, recent inflammation of the appendages, pregnancy.

Cancer of the Uterus.—In regard to the early recognition of cancer of the uterus, *D. E. Walker*⁸³ says that any moderately profuse vaginal discharge occurring about the menopause, no matter what its character, should excite suspicion and demands an examination, hemorrhage of an irregular character being the most prominent early symptom.

Writing of the early diagnosis of cancer of the body of the uterus, *F. B. Jessett*²¹ says that vaginal examination should be insisted upon in all cases suffering from leucorrhœal discharge; if on examination the discharge, occasionally slightly colored and offensive, is seen escaping from the uterine cavity of a woman at or past the menopause, the canal should be dilated, the uterus curetted, and the scrapings examined microscopically; if such are unfavorably reported upon total extirpation should be advised. Even in advanced cases, as long as the uterus is movable, life can be prolonged and much relief given

by vaginal hysterectomy. Two successful cases and one followed by death are appended.

A vaginal hysterectomy for carcinoma of the uterus is reported by C. Godson.²¹ Patient convalescing.

F. W. Johnson⁸⁴ gives a report of ten cases of carcinoma of the uterus operated upon by the method of hysterectomy employed by Kelly and Clark, of Johns Hopkins Hospital. Three died from the operation, in two the disease has returned, and the other five are living without recurrence at periods of eight to sixteen months after operation.

J. C. Warren⁸⁴ also advocates removal of the lymphatic glands along the iliac vessels at the brim of the pelvis.

H. I. Ostrom⁸⁵ performed vaginal hysterectomy for epithelioma of the cervix. Intravenous saline injections tided the patient over two apparently fatal post-operative hemorrhages, and recovery followed.

A vaginal hysterectomy for carcinoma uteri has been performed by C. G. Davis.⁸⁶ No recurrence is reported. A similar case is reported by F. W. Kidd.⁷⁰

Malignant Adenoma of the Cervix.—A case of malignant adenoma of the cervical glands, for which vaginal hysterectomy was performed by Alfred Smith,²¹ was followed by recovery.

Uterine Polypi.—The indications for operation given by P. Sebileau⁸⁷ are: for a visible polypus with small pedicle, torsion; if the pedicle is larger it should be first twisted, then cut with curved scissors; when the polypus is invisible, dilatation of the cervix precedes these steps. For any polypus with a large pedicle he advises median section of the uterus after transverse incision of the anterior cul-de-sac and separation of the peritoneum as high as is necessitated by the length of the uterine incision.

Uterine Fibroids.—Témoni⁶⁰ is able to report forty-five cases of uterine fibroids treated by enucleation with partial hysterectomy. He places clamps temporarily upon the broad ligaments, after drawing the tumor out through the abdominal incision, makes a free incision from near the cervix to the fundus of the uterus, and enucleates the tumor. The borders of the resulting cavity are trimmed and the uterine muscle united by two rows of sutures. The peritoneum is also sutured, the clamps removed, and the wound closed without drainage.

M. L. Harris¹⁴ removed from a patient 70 years of age a calcified uterine fibroid which had caused intestinal obstruction. The patient became comatose on the second day and died.

Two cases of fibroid of the uterus are described by E. Van de Warker.⁶⁸ One was complicated with adeno-lymphangitis and phlebitis of the leg. Hysterectomy by the combined route was followed by recovery. In the other case the diagnosis was obscured by a congenital transverse septum just below the vaginal cervix and with an opening resembling the external os. Hysterectomy, recovery.

After a discussion of the symptomatic treatment of fibroids,

in which electricity is mentioned as having no place, W. E. Ashton⁵⁵ considers the surgical treatment. Of hysterectomy he says that supravaginal amputation by the abdominal route, with intraperitoneal treatment of the stump, is preferable. Morcellation for submucous or interstitial fibroids cannot be too strongly condemned, as it leaves the uterine cavity badly lacerated and liable to infection. Vaginal hysterectomy following morcellation is unsurgical and dangerous. It is impossible to know, until it is nearly performed, whether adhesions are present. He believes that castration for fibroids should be more frequently performed, as hemorrhage is controlled in three-fourths of the cases and in three-fifths there is decrease in size of the uterus.

A patient of C. G. Davis⁵⁶ operated upon by vaginal hysterectomy for fibroids recovered, as did also another from whom a fibroid uterus was removed by morcellation.

Horwitz⁵⁷ noticed, in comparing two cases of women who had given birth to children and whose uteri contained fibroids, that the tumor decreased markedly after delivery in the patient whose lactation was long continued and abundant, while no such occurrence was observed in the other whose child was fed artificially. In view of this fact, and considering the nervous relations of the uterus and breasts, Horwitz suggests aspiration of the breast as a possible palliative treatment for uterine fibroids. In his experiments he finds that small tumors are greatly diminished or disappear, under such treatment, for six months or a year, especially in myomatous tumors. The diminution is most marked in patients over 40 years of age. Large tumors may be checked in growth or somewhat diminished. Metrorrhagia usually ceases during the treatment.

Alfred Smith²¹ reports intraperitoneal enucleation of fibromyomata; A. Saulmann Fils,¹⁸ a total abdominal hysterectomy for fibroids; and J. W. Taylor,²¹ panhysterectomy without previous ligature for cystic myoma and double pyosalpinx. All recovered.

The Retroperitoneal Treatment of the Pedicle, and the Use of the Elastic Ligature in Myomotomies.—Innocente Clivio⁵⁸ believes that the preservation of the pedicle in laparomyotomy is not dangerous, as some writers would have us believe, and that it causes scarcely any trouble. The retroperitoneal treatment of the pedicle (its ligature excluding the peritoneum) is more rapid than other methods and possesses greater security. The technical difficulties are less than in total abdominal hysterectomy, especially if the elastic ligature be used, and the method is for this reason the best one for adoption in gynecological practice. The elastic ligature when properly applied causes neither immediate nor remote ill effects, and is most valuable as a means of checking hemorrhage and shortening the time of operation.

Vaginal Hysterectomy for Uterine Myomata.—In a former publication Leopold⁴ reported forty-eight cases of vaginal myomectomy, to which twenty-six new cases are now

added. Among these seventy-four cases there occurred but two deaths. It is important that the woman be in the best possible condition prior to the operation. For patients weakened from long-continued loss of blood subcutaneous saline infusions are recommended. To avoid climacteric disturbances healthy adnexa are not removed.

Abdominal Sections.—Three hysterectomies for uterine fibroids, two operations for pyosalpinx, and two ovariectomies for ovarian cysts, all by the abdominal route and all followed by recovery, are recorded by F. H. Martin.⁹⁹

Vaginal Hysterectomy.—Desguin⁹⁹ describes a new method of recognizing the lower border of the bladder, which is of importance, as injury to the bladder, especially in cases of uterine prolapse, is not very rare and the introduction of the sound does not give definite information. Desguin advocates the distension of the bladder with one to one and a half litres of fluid. As soon as the bladder begins to fill a transverse fold may be recognized, which indicates the junction of bladder and uterus. After this the bladder assumes the shape of a balloon, the transverse fold rises and separates itself (about two to three centimetres) from the border of the cecum. For filling the bladder an Esmarch irrigator is used; the mouthpiece must be conical in form, so as to fill the calibre of the urethra.

Total Abdominal Hysterectomy.—*Terrier*,⁹⁹ at the French Congress of Surgery, describes his operation of total abdominal hysterectomy as follows: The uterus is raised by forceps, the appendages removed after ligation, anterior and posterior peritoneal flaps dissected from the uterus, the uterine arteries clamped, and the uterus amputated above the cervix. The vaginal fornices are then opened, the cervix excised, and the peritoneal flaps united. *Routier* first separates the vagina and cervix, ligatures and divides the appendages, and places elastic ligatures upon the broad ligament, after which these are divided. *Pozzi* believes that *Terrier's* method does not sufficiently guard against hemorrhage and wounding the ureters. *Delbet* calls attention to the advisability of drawing the uterus strongly upward, so as to separate it from the ureters before cutting. *Goullioud* places a single clamp upon each broad ligament and divides the latter with the thermocautery.

Pantaloni and *A. Monprofit*²⁰ announce themselves as partisans of total abdominal hysterectomy, the former having done seventeen, with one death, during 1896.

Complete Vaginal Hysterectomy for Chronic Inflammatory Disease.—*Leopold*⁴ employs silk ligatures instead of the Péan-Doyen compression forceps. He has operated upon fifty-seven cases with only one death. His method of operation is as follows: If the vagina is very narrow a lateral incision is required; a circular incision is made around the cervix, which is then freed from the bladder; Douglas' cul-de-sac is usually obliterated, and can only be opened later either from above or from the other side; ligation of the uterus on one side from below upward, on the opposite side from above downward;

after the uterus has been extirpated the adnexa are removed; at times a previous opening of pus sacs is required. Whenever possible Leopold prefers the vaginal to the abdominal route.

Amenorrhea caused by Sea Voyages.—H. C. Bloom³⁵ considers amenorrhea frequently occurring after a sea voyage to be of neurotic origin. In regard to its treatment, he does not believe iron the best drug for the impoverished blood, but valuable in combination. He employs peptonate of iron with manganese. A well-regulated diet is necessary, and the condition of the blood may so affect the digestion as to demand pre-digested food or the use of ferments. Nuclein in three-grain doses four times a day acts well on the nervous element. Strychnine in full and increasing doses, some preparation of arsenic, such as arsenate of manganese, bone marrow with strychnine, and mercurial purgatives every fortnight, have proved of value.

Emmenagogue Action of Senecio.—Continuing their study of the emmenagogue action of senecio, Dalché and Heim⁷⁸ find it unreliable in amenorrhea, tending to leave unchanged or to diminish the menstrual flow. They employed a fluid extract of senecio vulgaris in doses of sixty drops.

Metrorrhagia after the Menopause.—A. H. N. Lewers³³ reports a case to illustrate the fact that other causes than malignant disease may cause bleeding after the menopause. In his case the flow, two years after this period, was due to congestion of the uterine mucous membrane caused by the growth of an ovarian cyst, after the removal of which it ceased. A similar case is recorded by J. B. Henderson.⁶⁷

The Uterine Mucous Membrane during Menstruation.—According to Mandl⁴ the surface epithelium becomes only in part detached; it is at these latter points where the subepithelial hemorrhages find their outlet. Red blood corpuscles do not penetrate the intact epithelium, but Mandl observed the transmigration of white cells. The detached epithelium is regenerated by an indirect nuclear division (mitosis). Minute fat globules are found in and upon the mucous membrane.

Peritonitis.—Peritonitis followed rupture of an ovarian abscess during removal of this and a broad-ligament cyst by Jacobs.¹⁸ The use of injections of streptococcus antitoxin and hypodermoclysis was followed by some improvement before death.

Serous Pelvic Collections.—The treatment of serous pelvic collections is given by Vautrin⁹⁰ at the French Congress of Surgery thus: In high and unilateral lesions with serous discharges laparotomy should be chosen; in old bilateral affections hysterectomy should be done. Anterior elytrotomy, alone or with posterior elytrotomy, should be done if the serous discharge is from high up.

Peritoneal Hydrorrhea.—C. Monod⁶⁰ describes an unusual case in which, after supravaginal amputation of the uterus for fibroids, the abdominal wound continued for nearly a year and

a half to discharge a clear, watery fluid differing from urine in composition and in absence of color and odor. That it was not a vesical fistula was shown also by the administration of substances which were eliminated in the urine but not in the watery discharge, which reached at one time the amount of two litres a day. Two operations failed to show the exact origin of the discharge, which finally ceased after having contained pus for several months.

Ascites of Young Girls.—Referring to a variety of ascites which occurs during puberty or the years following it, and ranked by Cruveilhier among the idiopathic forms of this condition, M. G. Bouilly⁹¹ states that he has ascertained that this ascites is symptomatic of a local tuberculosis of the deep genital organs, which spreads more or less to the peritoneum according to the intensity and age of the lesions. He has done several operations which have confirmed this opinion, in which, simultaneously with ascites and in the absence even of circumuterine symptoms, he found a more or less advanced tuberculosis of the tubes and of the peritoneum. In this affection the intraperitoneal effusion may seem to constitute the entire disease and often appears without premonitory troubles. The presence and quantity of the effusion are not connected with the extent of the peritoneal tuberculosis. The better characterized and most abundant ascites is met with where the tuberculosis is yet localized in the tubes, ovaries, and neighboring peritoneum, while it is more frequently absent in cases in which the entire peritoneal cavity is invaded by the tubercular process. The age of the patients, disturbances of the general health, amenorrhea, and the fact that some painful and occasionally febrile attacks may precede or accompany the enlargement of the abdomen and the production of the liquid, should be considered as important elements in the diagnosis in favor of ascites of tuberculous origin in the adnexa. Palpation is usually hardly painful; in a few cases it causes pain in the lateral parts, on the borders of the uterus, and in the region of the appendages; abdomino-vaginal palpation may reveal indurations and tumefactions on the sides of and behind the uterus. These perimetritic symptoms may be absent. Tubal lesions have been found in all cases, although the liquid sometimes prevented their discovery at the time. In two cases Bouilly has seen the liquid spontaneously absorbed under general medical treatment and revulsion continued for a long time on the abdominal wall. In one case, after simple puncture, the liquid was not reproduced, but the patient continued to suffer and a few years later underwent laparotomy for the removal of a large tube which was filled with tubercular pus and covered on its surface with granulations; in all the other cases he has employed surgical intervention.

Histological Changes following Laparotomy for Peritoneal Tuberculosis.—Gattis⁹² conclusions are based upon numerous experiments with guinea-pigs, rabbits, and dogs. The operation of laparotomy has a healing influence only in

cases of fibrous tuberculosis, while in cheesy degeneration good effects are rarely noticed. The cure of fibrous tuberculosis by laparotomy is not due to an inflammatory reaction and active proliferation of the connective-tissue stroma, as is commonly believed, but is caused by a slow degeneration and subsequent absorption of the epithelioid cells (hydropic degeneration). The round cells and bacilli disappear simultaneously, leaving only the pre-existing connective-tissue stroma with its blood vessels. This process is also observed in cheesy degeneration, but only in those cells situated in the connective-tissue zone. The conclusion, therefore, is that a laparotomy produces conditions unfavorable for the growth of tubercle bacilli. The proteins originating from the injured bacilli cause the slow degeneration of the epithelioid cells, upon which is based the regeneration of tubercle tissue. The injury to the bacilli is probably due to the abundant serous exudate which makes its appearance during the first six days after operation.

Hereditary Tuberculosis.—Bugge.¹⁶ In two carefully investigated cases a communication of tuberculosis from the mother to the child could not be found, and the examination of the placenta from two tuberculous women resulted negatively. The result in a child from a tuberculous mother, who died when a few hours post-partum, was different; in this case tubercular bacilli were found in the umbilical veins and in the vessels of the liver. Guinea-pigs inoculated with the blood from the umbilical veins or with particles of lung and liver perished from tuberculosis.

Syphilis.—In writing of the treatment of syphilis L. B. Bangs¹⁵ advises excision of the primary lesion and the adoption of constitutional treatment, without waiting for the appearance of secondary manifestations.

Gonorrhea.—Bumm¹⁹ defends his statement that as a rule the gonococcus is a parasite of the mucous membrane. He cites Jadassohn, who found that gonorrhea is a disease of the superficial layer of the mucous membrane. As to his view that gonorrhea is frequently a mixed infection, which was attacked by Wertheim, he refers to the recent reports of König; according to the latter, pus from the so-called gonorrheal joints contains strepto- and staphylococci, while gonococci are never present.

G. W. Newton¹⁶ writes of gonorrhea in women. Argentannin and argonin are considered by him as of less value in its treatment than nitrate of silver.

E. S. Bullock¹⁷ calls attention, in an article upon social purity and marriage, to the fact that fifteen per cent of all diseases of women, excluding prostitutes, are caused by gonorrhea.

Retention of Pessary.—H. W. Godfrey¹⁸ recently removed from a patient a circular wooden pessary which had been worn continuously for thirty-three years.

Serum Treatment of Malignant Growths.—W. H. Hapfel¹⁹ concludes that this treatment should be strictly confined to inoperable cases, as it will never give very good results with large tumors, because it is in most cases impossible to place

enough injections about their periphery at intervals of time sufficiently short to destroy the growth before it kills the patient.

Jaksch⁹⁶ reports five cases of malignant tumors treated with the Emerich-Scholl serum. In four cases absolutely no improvement was observed. In the fifth case the tumor grew smaller, but the patient developed an acute nephritis, a result of the injections, which nearly ended fatally. The severe chills which follow the injections are very objectionable. The author advises against this treatment.

The Relation of the Sexual Organs to the Upper Respiratory Passages.—Rothermund⁹⁷ says that during and shortly before the onset of menstruation a congestion of the nasal mucous membrane is frequently observed, which leads to a predisposition to catarrhal affections. Similar conditions are found during pregnancy. Disturbances of sensation and motility, apparently depending upon physiological or pathological conditions, are generally due to hysteria. Gynecological affections, accompanied by frequent bleeding, often lead to paresthesia or anesthesia of the pharynx. Castration and senile involution cause a deeper register or more masculine character of the voice.

Fatal Poisoning from Arsenic introduced into the Vagina.—Haberda⁹⁸ describes the following case: A young woman, a native of Styria, was sent to the hospital with the history that she suddenly fainted and had attacks of vomiting for the last two days. She was almost pulseless, had abdominal pain, and, believing her statement that she was menstruating, no vaginal examination was made. After an enema a stool with bloody mucus came away. Two days later she died. A post-mortem showed fatty degeneration and hemorrhages into the various viscera, subcutaneous icterus and hemorrhages, and acute fibrinous pelvic peritonitis. The vagina contained a paper bag with a quantity of white arsenic in fine crystals. Haberda mentions several cases where arsenic was introduced into the vagina for suicidal and homicidal purposes.

Prevention of Pelvic Disease.—The causes of pelvic disease demanding preventive treatment include imperfect development of the sexual organs. R. Peterson⁹⁹ advises restriction of hours of study and an abundance of out-of-door exercise for girls before puberty. He also urges their education concerning sexual functions, and that of boys in regard to the dangers of gonorrheal infection. The importance of the repair of lacerations due to childbirth is considered, also the necessity of strict cleanliness in obstetric practice in order to avoid sepsis after labor or abortion. The profession is urged to oppose the criminal abortionist by example and by enlightening patients concerning the dangers of the practice and the enormity of the crime.

Pelvic Inflammation.—The treatment of pelvic inflammation advised by W. Duncan⁹⁹ is as follows: If, a day or two after delivery, the temperature rises above 100° F. and the lochia are

at all offensive, an intrauterine douche of a 1:5000 bichloride is given night and morning; and if after two or three such douches the temperature does not fall and the lochia become odorless, he cures the uterus, gives another douche, and passes a twenty-grain iodoform suppository into the uterine cavity. Pelvic inflammation occurring apart from labor or abortion is usually of gonorrheal origin and preceded by endometritis. If only the latter is present Duncan cures the uterus, swabs it with iodized phenol, packs the uterus and vagina with iodoform gauze, and after two days irrigates the vagina with 1:3000 bichloride and places a pencil of iodoform in the uterine cavity, and packs the uterus as before. The vaginal douche is continued for two weeks, and iodoform pencils inserted into the vagina. If acute pelvic peritonitis is present a saline purge should be given, and large hot vaginal douches three times a day. Hot abdominal fomentations are soothing and do no harm. If the appendages are matted together by an old peritonitis the patient should be curetted and have absolute rest in bed for two or three months, with ichthyol wool tampons to prevent coitus and reduce pelvic engorgement. If this fails the diseased parts should be removed.

Pelvic Suppuration.—In discussing the relative merits of the vaginal and abdominal routes for the treatment of pus in the pelvis, W. D. Haggard⁹⁸ favors the former, simple vaginal section and drainage, with subsequent removal of the diseased organs if necessary. In old recurring cases where the appendages are hopelessly diseased the uterus should also be removed. Jacobs¹⁸ reports the cure of a case of extensive suppurative parametritis by abdominal incisions and formalin injections.

Vaginal versus Abdominal Section for Pelvic Suppuration.—W. D. Haggard⁹⁹ gives as indications for posterior vaginal section and drainage: early cases of acute suppurating salpingitis, incipient post-puerperal peritonitis, large pyosalpinx, and true pelvic abscess. J. T. Johnson does not believe this always safe, and thinks the abdominal route preferable in some cases. C. P. Noble does not think either route entirely advantageous, but prefers the abdominal in most cases. H. A. Kelly says that, when possible, pus in the pelvis should be treated by vaginal puncture or section, without sacrificing any of the appendages or the uterus for drainage. L. S. McMurtry holds similar conservative views. J. W. Bovée objects to anterior colpotomy unless the pus is on top and in front of the bladder. R. B. Maury holds that the abdominal or vaginal route must be selected, according to the case. W. E. B. Davis pronounces in favor of vaginal incision for large collections of pus in the pelvis.

Vaginal Route.—J. Stirton⁹⁰ indicates the following conditions as operable by the vaginal route: nearly all pelvic abscesses and extrauterine pregnancies during the first half of gestation, pelvic hematoceles, ovaries prolapsed into Douglas' cul-de-sac, extreme cases of retroversion, hysterectomy for

cancer of the cervix, enucleation of fibroids, catheterization of the tubes through the uterus in pyo- and hydrosalpinx.

Complicated Laparatomies.—In a description of a laparotomy following removal of one ovary seven months before, E. Ries⁹⁴ found the pelvic organs and tumors so matted together as to be unrecognizable. In such a case he advises bimanual palpation with one finger in the vagina, which has been previously aseptitized.

Post-operative Insanity.—E. S. Lewis⁹⁵ relates the history of two cases of insanity following operations for lacerated perineum and ovarian tumor respectively.

R. B. Rhett⁹⁶ has seen three cases of temporary insanity from the same cause.

Cutaneous Emphysema after Laparotomy.—Based upon animal experiments and an observation in a case of Cesarean section, Heil⁴ ascribes the development of an emphysema in and around the laparotomy wound to faulty closure of the abdominal incision.

Intestinal Fistula.—A. Montegnacco⁹⁶ gives the history of a case and describes the operatory procedures for relief of the condition. He followed Malgaigne's method and was successful.

Umbilical Hernia.—A case of congenital umbilical hernia of the large intestine is reported by S. K. Church.⁵¹ Reduction was impossible, and death occurred in thirty-six hours.

Vaginal and Pudendal Hernias.—Paul Berger⁶⁰ reports a case of pudendal and one of vaginal hernia. He says that vaginal hernias are of two forms: one possesses a sac connected by a more or less constricted neck with Douglas' cul-de-sac, and requires a radical operation; the other is formed by the protrusion of the whole posterior vaginal wall by the intestines, which distends an abnormally developed pouch of Douglas. These are ill-adapted to radical operation, and demand treatment only when they become extreme or lead to prolapse of the uterus. The treatment should then consist of operations to prevent the uterine prolapse and contract and strengthen the vagina.

Kraurosis Vulvæ.—Czempin⁴⁴ describes two typical cases of kraurosis. Intolerable itching and stenosis of the vulva was present in both cases. In the first case an epithelioma the size of a bean was removed together with the greater part of the vulva.

Absence of Vagina and Uterus.—A case of entire absence of vagina and uterus, in which the external genitals were perfectly developed, is recorded by J. L. Spruill.¹⁰¹

Cancer of the Vagina.—Niebergall⁴ reports a case of cancer of the vagina which was undoubtedly the result of contact infection.

Vaginismus.—In vaginismus temporary anesthesia may be produced, says W. J. Sinclair,⁴⁰ by the application of cocaine. There is no rational method of treatment without ascertaining the causes of the symptoms. These causes he believes to in-

clude, in every case, an abnormality of the sexual organs, either local or a general condition of excitability of the whole sexual system. A so-called idiopathic case is only one in which the cause is relatively obscure. We must assume some general condition, some idiosyncrasy or neurotic type in the individual, as common to all cases. We then find clearly some derangement which brings about the trouble in the special type of individual, a definite local lesion or a general condition due to excitement of the sexual organs. In the latter class the male is the primary cause, being impotent or semi-impotent, and treatment of the woman gives only temporary relief. In a neurotic woman a moral obstacle may be presented, an aversion to sexual relations themselves or to the husband. If a definite lesion is found a cure may be secured by its removal.

F. W. A. Godfrey¹¹ records three cases of vaginismus due to a hyperesthetic condition of the hymen or its remains, and cured by its removal and prolonged dilatation of the vagina.

Atrophy of Vagina following Hysterectomy.—E. E. Tull⁶³ reports a case of senile atrophy of the vagina after removal of the uterus and ovaries. Such cases are annoying on account of the intense vaginitis.

Broad-ligament Cyst.—A case of broad-ligament cyst, the clinical history of which resembled that of recurrent appendicitis, is described by E. E. Montgomery.⁶³ The pedicle had been twisted four times.

Fibroma of the Presacral Region.—Della Porta⁶⁶ reports a case in which there was a fibroma as large as the head of an adult, ovoid in form, and extending from the third sacral to the second lumbar vertebra. The neoplasm was removed by laparotomy and the patient made a good recovery. Fibroma is rarely developed between the spinal column and the peritoneum. In the case in point the author believes that the tumor originated in the mesorectum.

Extraperitoneal Operation for Biliary Calculi.—Kümmel⁸⁰ describes a new operation which he terms "ideal." After discussing the symptoms and diagnosis of biliary calculi, he points out the shortcomings of the operation employed (cholecystotomy), after which biliary fistulæ of long standing are often observed. Kümmel's method, which, however, is not practicable in all cases, is as follows: The gall bladder is freed from adhesions, after which the cystic and common bile ducts are examined; the gall bladder is sutured to the surrounding peritoneum, thus becoming extraperitoneally situated. The bladder is then incised, stones present in either gall bladder or ducts are removed, and the wound is closed. The advantages of this method are, above all, the healing of the wound by first intention and the avoidance of a fistula; besides this a *vis a tergo* is created which presses small concretions, possibly overlooked, into and through the ducts. The operation has been performed in twenty-four cases with great success.

Care of the Breasts.—In a clinical lecture upon the care of the breasts, mastitis, and mammary abscess, Denslow Lewis⁸² says that when a puerperal woman experiences pain in the

breast, when it is found hardened and tender on pressure, the child should no longer be permitted to nurse at that breast; the breast binder should be applied tightly and a good saline cathartic given. As soon as suppuration is discovered free incisions and drainage are indicated. Rubbing the breasts toward the nipples with olive oil, and the application of extract of belladonna, are not advised; the use of heat by poultices or any other method is strongly condemned.

Carcinoma of the Breast.—H. Snow²³ reports the removal of an early colloid carcinoma of the breast from a woman 37 years old. Sections showed dilatation of the ducts, typical scirrhus acini in a small portion, and elsewhere the acini enveloped by hyaline material which pervaded the connective tissue of the lobules generally. He considers that this shows colloid cancer to be really a mucoid degeneration of the connective tissue in and around the parenchyma, and affecting the epithelial cells only secondarily.

Spontaneous disappearance of a secondary cancerous growth—the third recurrence after removal of a scirrhus carcinoma of the breast in a woman of 44—has been noted by P. Gould.⁴⁶

Marrow Infection in Mammary Carcinoma.—H. Snow⁷¹ says that, after excision of the breast and axillary glands for cancer, recurrence may take place by infection of the marrow of the humerus, sternum, or other bones, although the scar of operation remains healthy. Physical signs of marrow infection are rarely evident until the disease has lasted eighteen months, and may be delayed much longer. The upper third of the humerus becomes tender on pressure and the bone feels slightly thickened. The sternum gradually bulges forward at the junction of the upper and middle portions; this is painless, is seldom noticed by the patient, and rarely proceeds to actual tumor formation. Pain is a late symptom, and is referred to the lumbar region, scapulæ, and arm of the same side as the lesion. It is deep seated, described as gnawing or aching, worse at night, and, like rheumatism, is alleviated by salicylates, but does not affect the articulations. The sternal prominence is a reliable symptom of bone infection only when associated with the gnawing lumbar and scapular pains, and particularly when developed under observation. Snow says that many cases recorded as mollities ossium and osteitis deformans have been found associated with a malignant growth, usually sarcomatous, somewhere in the osseous system, and that it seems likely that all will eventually fall into the same category. He urges examination of the marrow at autopsies.

Primary Mammary Tuberculosis.—C. A. Powers⁹⁹ puts on record a case of primary tuberculosis of the breast, diagnosed as cancer. The treatment should be practically the same as in the latter disease, though the pectoral muscles may be spared. The axillary glands should be removed, as they may be early involved.

Vulvo-vaginitis of Little Girls.—From observation of three cases of vulvitis and vulvo-vaginitis in young girls who had

been sent for treatment for supposed precocious menstruation, Comby⁶⁶ infers that many so-called metrorrhagias and precocious menstruations in virgins are really hemorrhagic complications of a vulvitis.

Fatal Hemorrhage from Slight Wound of Vulva.—A case in which death occurred from hemorrhage from a lacerated wound about one-third of an inch square, situated at the junction of clitoris and labium minus of one side, is reported by C. S. Ford.⁴⁶

Death from Tear of Rectum.—H. N. Vineberg,¹⁴ after performing laparotomy for intraligamentous cyst and removing diseased appendages, drew the retroverted uterus forward with volsella forceps and did a ventrofixation. Death occurred in seventeen hours on account of an undetected tear of the rectum produced in drawing the uterus forward.

REFERENCES.

- ¹ Brist. Med. Chir. Jour., Dec. ² Cent. f. Gyn., No. 48. ³ Ann. di Ostet. e Gin., Dec. ⁴ Arch. f. Gyn., Bd. lii., H. 3. ⁵ Char. Med. Jour., Dec. ⁶ Cent. f. Gyn., No. 52. ⁷ Pac. Med Jour., Jan. ⁸ Jour. des Sci. méd. de Lille, Jan. 16th. ⁹ L'Obstét., Jan. 15th. ¹⁰ Am. Gyn. and Obst. Jour., Nov. ¹¹ Quart. Med. Jour., Jan. ¹² Bost. Med. and Surg. Jour., Dec. 17th. ¹³ Med. News, Jan. 16th. ¹⁴ Am. Gyn. and Obst. Jour., Jan. ¹⁵ Monatschr. f. Geb. u. Gyn., Bd. iv., H. 15. ¹⁶ Zieg. Beitr. z. path. Anat. u. allg. Path., Bd. xix., H. 3. ¹⁷ Md. Med. Jour., Dec. 5th. ¹⁸ Bull. de la Soc. Belge de Gyn. et d'Obstet., No. 9, 1896. ¹⁹ Med. News, Dec. 26th. ²⁰ Col. Med. Jour., Dec. ²¹ Brit. Gyn. Jour., Nov. ²² Johns Hopk. Hosp. Bull., Nov. and Dec. ²³ Lancet, Dec. 19th. ²⁴ Cin. Lan. Clin., Jan. 23d. ²⁵ N. Y. Med. Jour., Jan. 2d. ²⁶ Le Prog. méd., Dec. 19th. ²⁷ Dubl. Jour. Med. Sci., Jan. ²⁸ Berl. Klin. Woch., No. 51. ²⁹ Cent. f. Gyn., No. 51. ³⁰ Md. Med. Jour., Nov. 14th. ³¹ Münch. Med. Woch., No. 1. ³² Chic. Clin. Rev., Dec. ³³ Lancet, Jan. 2d. ³⁴ Soc. de Biol., Dec. 12th. ³⁵ Univ. Med. Mag., Dec. ³⁶ Med. Rec., Dec. 26th. ³⁷ Med. Rec., Jan. 2d. ³⁸ S. Cal. Pract., Dec. ³⁹ Cent. f. Gyn., No. 50. ⁴⁰ Med. Chron., Dec. ⁴¹ Münch. Med. Woch., Nos. 51 and 52. ⁴² Cent. f. Gyn., No. 49. ⁴³ Münch. Med. Woch., No. 2. ⁴⁴ Berl. Klin. Woch., No. 52. ⁴⁵ Cent. f. Gyn., No. 1. ⁴⁶ N. Y. Med. Jour., Jan. 9th. ⁴⁷ La Clin., Dec. ⁴⁸ Lancet, Dec. 5th. ⁴⁹ Deutsche Med. Woch., No. 52. ⁵⁰ Lyon méd., Dec. 20th. ⁵¹ N. Y. Med. Jour., Jan. 16th. ⁵² Jour. Am. Med. Assn., Dec. 12th. ⁵³ Am. Gyn. and Obst. Jour., Dec. ⁵⁴ Bost. Med. and Surg. Jour., Jan. 14th. ⁵⁵ Buff. Med. Jour., Jan. ⁵⁶ Virchow's Archiv, Bd. cxliv., H. 2. ⁵⁷ Bost. Med. and Surg. Jour., Dec. 24th. ⁵⁸ Atti della Assoc. med. Lombarda, May and June, 1896. ⁵⁹ Ann. Surg., Jan. ⁶⁰ Ann. de Gyn. et d'Obst., Nov. ⁶¹ Berl. Klin. Woch., No. 47. ⁶² Jour. de méd. de Paris, Dec. 13th. ⁶³ Deutsche Med. Woch., No. 48. ⁶⁴ Ann. de Gyn. et d'Obst., Nov. ⁶⁵ Jour. des Sages-Fem., Jan. 16th. ⁶⁶ Pac. Med. Jour., Dec. ⁶⁷ Lancet, Jan. 16th. ⁶⁸ Med. Rec., Jan. 23d. ⁶⁹ Jour. des Sci. méd. de Lille, Jan. 9th. ⁷⁰ Lancet, Dec. 26th. ⁷¹ Lancet, Jan. 9th. ⁷² Lancet, Dec. 12th. ⁷³ La Policlin., Dec. 1st. ⁷⁴ Tipographia Fratelli Centenari, Rome, 1896. ⁷⁵ Deutsche Med. Woch., No. 50. ⁷⁶ Am. Jour. Med. Sci., Dec. ⁷⁷ N. Y. Poly., Dec. 15th. ⁷⁸ Bull. gén. de Thér., Dec. 8th. ⁷⁹ Berl. Klin. Woch., No. 50. ⁸⁰ Münch. Med. Woch., No. 50. ⁸¹ Am. Jour. Med. Sci., Jan. ⁸² Le Prog. méd., Dec. 5th. ⁸³ N. Y. Med. Jour., Dec. 26th. ⁸⁴ Bost. Med. and Surg. Jour., Dec. 31st. ⁸⁵ Med. Times, Jan. ⁸⁶ Chic. Clin. Rev., Jan. ⁸⁷ Gaz. méd. de Paris, Jan. 9th. ⁸⁸ Ann. di Ostet. e Gin., Nov. ⁸⁹ N. Amer. Pract., Jan. ⁹⁰ Gaz. méd. de Paris, Dec. 5th. ⁹¹ Gaz. méd. de Paris, Dec. 26th. ⁹² Arch. f. klin. Chir., Bd. liii., H. 4. ⁹³ Internat. Clin., vol. iii., Oct., 1896. ⁹⁴ Glas. Med. Jour., Dec. ⁹⁵ Alb. Med. Ann., Jan. ⁹⁶ Mittheil. aus der Grenzgeb. der Med. u. Chir., Bd. i., H. 3. ⁹⁷ Monatschr. f. Geb. u. Gyn., Bd. iv., H. 5. ⁹⁸ Am. Prac. and News, Nov. 28th. ⁹⁹ Jour. Am. Med. Assoc., Dec. 19th. ¹⁰⁰ N. C. Med. Jour., Dec. 20th. ¹⁰¹ Med. Chron., Dec.

PEDIATRICS.

Adenoids.—Hanau W. Loeb¹ discusses adenoids as a cause of mouth-breathing and the means of its relief.

Apparent Idiocy, Cure of.—Liebman² reports the case of a boy, 6½ years old, who made remarkable progress during five months of painstaking care and teaching. After that he did fairly well at school.

Appendicitis.—Carron³ de la Carrière describes several cases of recurring appendicitis in children, in which vomiting was the only symptom accompanying the crisis; pain, fever, and swelling of the abdomen all being absent. In such cases the vomiting occurs brusquely, usually upon awaking, and becomes incoercible, consisting of a colorless, abundant liquid containing some mucus. The attacks may occur fifteen to twenty-four times in twelve hours, and then gradually cease, either permanently or to recur in modified form in a few days. In the cases described by the author the diagnosis was so difficult as to seem at first impossible, but by means of exclusion he finally thought of the appendix, and, by the most minute examination of the right iliac fossa, found a painful point in McBurney's point, and by careful palpation was able to feel the enlarged and elongated appendix. The predisposing cause in all these cases was constipation; the determining cause of the crisis a chilling of the body, increase of the constipation, or, more rarely, a blow or fall upon the abdomen. The patients nearly all had a neurotic tendency. L. Emmett Holt⁴ reports a case followed by general peritonitis in a child 2½ years old, in which death occurred and an autopsy was held.

Alimentary Hygiene of Childhood.—A. Boissard⁵ reports the results of the use of milk humanized according to the method of Gärtner, of Vienna. Nothing, of course, can replace mother's milk, and it is his practice to urge the nursing of the infants by their mothers for five or six months. In some cases, where the amount or quality of the milk is defective, sterilized milk is added to the diet; in others humanized milk is used instead of the sterilized. Where the feeding has to be entirely artificial the sterilized and humanized are both given, or the humanized milk is given alone. Five cases in which the last-named method was used are reported. One child, who on the 21st of July, 1895, weighed 3,600 grammes, upon the 21st of November weighed 6,500 grammes, its diet having been the humanized milk, with the exception of two occasions when boiled and sterilized milk were substituted, and a loss of weight was at once noticed. In the case of an infant prematurely born, and weighing 2,100 grammes, an exclusive humanized milk diet raised the weight to 2,500 grammes in the first twelve days, and by the forty-second day the weight was 3,200 grammes. The author says that the results so far obtained do not as yet justify any definite conclusions upon the subject, but that they do confirm his opinion that humanized, or, as he expresses it, "maternized" milk is destined to render valuable

service in the alimentation of the newly-born, that[†]in[‡] many cases it is of advantage to use it instead of sterilized milk, and that its exclusive and prolonged use often gives the most satisfactory results.

Bromoform Poisoning.—William Fitch Cheney⁶ reports a case in a child of 3 years resulting from the use of a bromoform mixture for pertussis.

Bowing of the Left Arm in Rachitic Children.—J. S. Stone⁶ illustrates the cause of this condition by the report of two cases. In each case the mother was right-handed, and, in helping the child to walk, grasped its left hand and wrist. The bones of the forearm are bent exactly where the little finger of the mother pressed against them.

Cerebral Diplegia, Congenital, in a Child born of an Extrauterine Pregnancy.—Grosz⁷ reports a case of this kind; the child was delivered by laparotomy, and died of exhaustion when 4 months old. At the autopsy a pachymeningitis was found (chronic hemorrhagic), with compression of left cerebral hemisphere, atrophy of left optic nerve, and descending degeneration of the spinal cord. The intra-abdominal compression of the child was apparently responsible.

Cerebral Palsies, Acute, in a Child.—Report of a case by S. G. Courtney Pinckney.⁸

Choreic Embolism.—A case of this very rare condition is reported by Samuel S. Adams.¹⁰

Cicatricial Stenosis of the Larynx.—Augustus Caillé⁴ reports a case occurring in a child which was probably the result of pressure necrosis or direct injury in tubing during an attack of diphtheria.

Cirrhosis, Alcoholic, in a Child of 4 years.—Marfan¹¹ gives an account of a little girl who was brought to him because of marked ascites. The diagnosis of the disorder was difficult. Laparotomy was performed, and the liver was found to be much enlarged. There was no tuberculous peritonitis, no neoplasm of the abdomen nor of the hilum hepatis. Every symptom pointed to cirrhosis of the liver. This disease is rare in childhood, but has occurred between the ages of 5 and 15. The case under consideration is remarkable for its occurrence at 4 years of age. In the endeavor to find the cause of the disease, it was ascertained that from the age of 2 years the child had been accustomed to eat meat, fruit, bread, and to drink wine and water. Fever, headache, and depression, probably the result of gastric intolerance, following, a physician prescribed a little grog, and the mother interpreted his orders so liberally that she gave it every time the child was thirsty, which was very frequently. Not a night passed without the child's taking a mixture of rum or brandy and water.

Cold Water in the Treatment of Children's Diseases.—J. Comby¹³ states that the action of cold water is refrigerant, revulsive, "*eupnéique*," systolic, diuretic, tonic to the nervous system, and sedative. As an antithermic agent it should be used when the temperature rises above 104° F., but should not

be repeated if reaction is not good. General infectious diseases do not contraindicate the cold bath. Pneumonia and bronchopneumonia may be treated by this means, except in the diffuse capillary suffocating form of broncho-pneumonia. Baths are not well borne in tuberculous meningitis, miliary tuberculosis, and heart diseases. Oftentimes a wet pack, cold compresses, or an ice bag locally applied are well supported where the cold bath is contraindicated. The baths may be given as in adults, but should be shorter, lasting not longer than ten minutes. Friction, warm wrappings, stimulants, the application of hot-water bottles, should follow the bath, which may be repeated every three hours. The author gives full directions for all forms of cold-water applications.

Congenital Dislocation of the Hip.—The final results of the bloody and bloodless operations are given by Hoffa,¹⁴ who reports thirty cases in children who had been operated upon one or both sides by the bloodless method and showed excellent functional results. He regards this operation as a decided step in advance, requiring only three months of treatment and no supporting apparatus to the limb later. No one of his cases showed stiffening of the joint or contractures.

Congenital Syphilis, Unusual Form of Liver Lesion.—Cohn¹⁶ reports a case with microscopic sections from 3-days-old child, the liver showing a distinct tumor adherent to its under surface, and composed of liver tissue and connective tissue; few bile ducts. This has never been described before.

Conjunctiva, Cyst Formation in the.—Adler¹⁷ reports the case of a girl who shows this rare condition. It is congenital, the cysts, three in number, lying in the connective tissue of the lower lid and originating from Krause's glands as retention cysts.

Creosote in the Treatment of Pleuro-peritoneal Tuberculosis in Children.—Thoma¹⁸ writes that at the onset he uses enemata composed of a mixture of emulsified cod-liver oil (four ounces) and creosote (eighteen grains). After eight to ten days he gives eighteen grains of creosote. After the treatment has been continued for some weeks it is a good plan to suspend it for five to six days and begin again. The antiseptic action of the creosote is valuable against intestinal fermentations, and it is possible that it may have a curative effect on tuberculous deposits. At any rate, improvement is noted after several days of the treatment.

Cretin, A Pregnant.—A case reported by Charles W. Townsend.⁴

Diathetic Origin of Tissue Overgrowth in the Pharynx of the Child.—Henry J. Mulford,²⁰ in an article upon this subject, expresses the opinion that this condition is frequently seen in children without other blemish who are otherwise the picture of health and without vicious inheritance. He believes that adenoid growths do, in certain cases, exist because of a diathesis, and that this tissue overgrowth is simply normal tissue overgrown its natural limit. Microscopical examina-

tion of sections taken from the normal pharyngeal vault and from adenoid vegetation tissue shows that the minute glands of the former are no larger in the latter, but that they have simply increased in numbers in the overgrowth; the blood vessels and the connective tissue carrying them have also increased for the reason that the tissue supplied by them has increased and needs more blood. This tissue overgrowth, however, has no function for good, existing as it does in large amount and obstructing passages of great importance to the child. It also presents a good field for the growth of micro-organisms, and soon becomes a victim to its own secretion. The condition known as adenoid vegetation involves a question: Is it merely a freak of growth by which the normal limit of form is over-shot, or is it due to some clearly defined cause? Are we to infer that this tissue is remnant tissue—that it is tissue undergoing retrograde metamorphosis in the process of evolution? This is not proved, and the author does not believe it for the reason that after operation, in cases in which there seems to be a direct cause for the growth, the removal does not suffice for a cure. The growth recurs if there be no after-treatment. On the contrary, if the supposed cause is removed the growth does not recur. Having observed this close connection between cause and effect, the author believes that in every case there may be found a well-marked cause. Inherited syphilis and tuberculosis may account for it in some cases; in the obscure cases the author is of opinion that another circulatory cause is at work, that cause being an inherited diathesis. A diathesis must be inherited if it exists in early life, though it may be created later without hereditary fault. In an older, tougher organism a diathesis is cause for much harm; in the young child the opportunity for harm is vastly greater. The child's tissues are very sensitive to irritation, especially those of the pharyngeal mucous membrane. It can be said, in truth, that the child's throat is a mirror of his general condition. The author presents a number of cases to illustrate the existence of this inherited diathesis, in which there was no recurrence when general treatment was adopted to overcome the diathesis in addition to the removal of the growths, but when the general treatment was neglected the adenoids returned.

Diphtheria.—G. Variot²¹ has not found the antidiphtheritic serum to be of any value in cases of broncho-pneumonia complicating laryngeal diphtheria and phrenoglottic spasm. He infers from this fact that broncho-pneumonia of diphtheritic origin is of rarer occurrence than has been supposed to be the case, and that in all probability the pulmonary lesions constitute a morbid process as yet not fully understood, but due to some cause other than diphtheria. The occurrence of broncho-pneumonia in croup should not escape the notice of an observant physician, and may be established by the increase in number of the respiratory movements, an abundant purulent expectoration, hyperpyrexia, and the signs perceived upon auscultation. The prognosis is grave, there being no specific treatment. Tepid baths

may be resorted to, in order to combat the fever; oxygen, alcohol, champagne, and hypodermatic injections of caffeine may all be tried, but are not, as a rule, very efficacious. Emerson M. Sutton²² describes a rational treatment of diphtheria with or without antitoxin. He uses cocaine in the form of a spray to relieve the hyperemia which first takes place, and thus prevents exudation and subsequent systemic poisoning. J. M. Wells²³ reports a case of diphtheria treated with antitoxin with subsequent death from acute ascending paralysis. M. P. Mahoney²⁴ gives the results obtained with the use of antitoxin in diphtheria in thirty-four cases. Of these thirty were injected within the first seventy-two hours with only one death. In four cases in which the disease had existed for four to five days the injections were followed by death. In an article entitled "Why is Antitoxin a Bone of Contention in the Treatment of Diphtheria?" Augustus A. Brieser²⁵ says that we should inject antitoxin only in cases seen early in the disease, or in cases which assume the character, both clinically and bacteriologically, of the simple Klebs-Löffler diphtheria. In cases seen late, or in cases in which, from the severity of the clinical symptoms, or especially from the fact that the kidneys are working badly, you are positive that there is a mixed infection, it is safer to discard antitoxin altogether. M. Gaston²⁶ reports good results from the use of Marmorek's serum, and from the Roux serum as well. In the use of the latter upon thirty-one cases he had twenty-six recoveries. Fenyvessy¹⁶ has an article on the diphtheria toxin and antitoxin and its action on the frog's heart. He made exhaustive experiments with the isolated heart and with the organ still in the body. His conclusion is that the "blood lymph" of immunized animals does not exert its antitoxic influence through chemical neutralization of the toxin, but by changing the function of the cells (in these experiments heart muscle cells) in a manner contradictory to the toxin.

Eczema.—L. Duncan Bulkley,⁵ in an article upon the treatment of this disease in children, given in the form of answers to questions, states that in his experience he cannot recall a case where harm resulted from the treatment of an eczema. Constitutional treatment, including diet and hygiene, is the main reliance in a large proportion of cases. Few dermatologists now hold to any fixed diathesis as a cause of the eruption. Predisposing causes are, primarily, debility of tissue; secondarily, many internal and external conditions which lead to faulty action of the deeper layers of the skin, internal causes being classified under *dietetic*, *assimilative*, and *neurotic*, and external under *climatic* and *hygienic*. Diet plays a large part in the causation, in the sense that a faulty nutrition of the tissues leads to eczema. Diet is largely relied upon in the treatment. The rule given is that there is to be instituted *such a regulation of the quantity and quality of the food and drink taken, its mode of preparation, and time and method of consumption, as shall conduce to the restoration and maintenance of health.* Eczema is sometimes reflex.

particularly in regard to the teeth, so far as relates to separate outbursts of the eruption. In the treatment each case should be studied individually. The tonic idea should pervade all treatment; mild laxatives are of advantage; arsenic sometimes helps, but often fails. Too strong and irritating local applications must be avoided, protection and soothing being the conditions required by the skin. Oxide of zinc ointment is bland and forms a protective coating; subnitrate of bismuth acts in the same way and is more astringent. The author cautions practitioners against continually trying new remedies, and advises thorough acquaintance with a few remedies or combinations.

Empyema, Contribution to the Treatment of.—Grimm³⁰ reports a case of empyema in conjunction with a subphrenic abscess in which the abscess discharged spontaneously through the umbilicus, and resection cured the empyema; also four other cases of empyema cured after operation, two without resection of a rib.

Erythema, Infectious, of Unknown Origin.—G. Lazard³¹ reports a case in a child of 13 months.

Ether Narcosis in Children.—Stoss,¹⁶ basing his opinion on two hundred cases, recommends ether as the less dangerous anesthetic in children.

Fibrochondroma of Branchial Origin.—A. W. de Roaldes³² reports a remarkable case in which the growth, otherwise known as pharyngeal teratoma, was removed from the throat of an infant 6 weeks old.

First Teeth, Contribution to the Filling of.—Ritter³³ insists upon care of the teeth from a very early age. While it is rarely possible to fill a tooth in a child under 5 years, after that age it is advisable, but cement or amalgam should be used in preference to gold. The first permanent molar, appearing in the sixth year, requires especial care in the treatment of its caries, which occurs so very frequently.

Flat-foot, Treatment of.—J. S. Stone³⁴ writes that, as regards treatment, those cases of simple pronation, the "weak foot" of Whitman, are to be distinguished from those in which there is in addition a breaking down of the arch. In the milder cases attention should be given to teaching a correct attitude and to the use of proper shoes. Bathing, rubbing, and exercise, together with proper constitutional treatment, are necessary adjuncts. Special exercises and bicycle-riding are useful. In those cases in which the arch has yielded, the milder measures are often insufficient and some form of mechanical support is then necessary. In cases where inflammatory adhesions have formed, the most prompt and satisfactory method is to thoroughly break up the adhesions and hold the foot at rest for several weeks in an over-corrected position. When circumstances make the radical treatment impossible the resistance may gradually be overcome by manipulation and exercise.

Gastro-intestinal Hemorrhages of the Newly-born.—J. Barozzi³⁵ says that we must be upon our guard not to diagnose

as true melena the mere appearance of blood from the mouth or the rectum. It may be due to the swallowing of blood from a lesion of the nipple, lesions of the nose, mouth, or pharynx, etc., or it may come from rectal polypi. In the treatment of true gastro-intestinal hemorrhages, Hermary recommends cutaneous stimulation to cause increased circulation and stimulation of the nerve centres. For this purpose dry or alcohol rubbings of the skin, warm baths at 100° to 104° F. from one to five minutes, followed by repose in an incubator heated to 98.6° F., or wrapping in cotton batting with hot-water bottles. 2. The administration of two and one-half drachms of mother's milk by gavage every two hours. 3. Cold drinks, administration of ice, of ergotin, etc., to cause gastro-intestinal vaso-constriction. Tannin, alum, gallic acid, hamamelis, and many other remedies have been recommended. In desperate cases, when the patient is almost in collapse, cutaneous revulsives may be applied or artificial or natural serum be injected subcutaneously. The latter method is deserving of the attention of practitioners. The formulæ of various serums are given by the author, who says, however, that a 1:100 salt-water solution is perhaps the best of all. Inhalations of oxygen, artificial respiration, and injections of ether should also be administered.

Gonorrhea.—Moncorvo²¹ enters somewhat minutely into the history of gonorrheal manifestations in childhood, and describes the case of a little girl of 11 years in whom a blenorragic vulvo-vaginitis accompanied by urethritis was followed by arthro-synovitis affecting the wrist and carpo-metacarpal articulations. Analgen in eight-grain doses and local applications of asaprol overcame the affection.

Glandular Fever.—In the course of some remarks on this disease Dawson Williams¹⁸ states that it is obvious that the specific characters of the disorder are not well marked. Enlargement of the cervical glands secondary to various local lesions is such a common occurrence in children that the simplicity of Pfeiffer's "Drusenfieher" has not met with general acceptance. The author has seen in the last few years a considerable number of cases answering the description of glandular fever. In some cases he has observed several children of the same family to be affected in succession. The most distinctive point is that the symptoms occur without obvious lesion of the pharynx and tonsils, and are altogether disproportionate to any slight pharyngitis which may be present. The several glands can be distinguished by palpation, and the skin moves freely over them and is little if any reddened. The adenitis subsides spontaneously without suppuration.

Human-breast Milk, a Clinical Report on the Chemical Examination of Two Hundred Cases.—Vanderpoel Adriance⁴ has a most exhaustive article on this subject, containing many tables of analyses of normal and abnormal milks. His conclusions concerning normal milk are as follows: 1. The fat shows no constant changes during lactation. Its most marked characteristic is its variability. 2. The carbohydrate

on the second day of lactation is low, but rises rapidly during the first few days. This increase continues, but less rapidly, up to the end of lactation. 3 The proteids pursue a course the reverse of the carbohydrate. 4. The salts diminish similarly to the proteids. 5. The total solids are represented by 12.20 per cent till the later months of lactation, when they decrease rapidly. 6. The colostrum period has a low percentage of carbohydrate, with a tendency to increase rapidly, and a high percentage of proteids and salts, with a tendency to decrease rapidly. 7. The milk of the later months of lactation shows a deficiency in proteids, ash, and total solids. A summary of the remarks on abnormal milk is as follows: 1. Excessive fats or proteids may cause gastro-intestinal symptoms in a nursing infant. 2. Excessive fats may be reduced by diminishing the nitrogenous elements in the mother's diet. 3. Excessive proteids may be reduced by a proper amount of exercise. 4. Excessive proteids are especially apt to cause gastro-intestinal symptoms during the colostrum period. 5. The proteids, being higher during the colostrum period of premature confinement, present dangers to the untimely-born infant. 6. Deterioration in human milk is marked by a reduction in proteids and total solids, or in the proteids alone. 7. This deterioration takes place normally during the later months of lactation, and, unless proper additions are made to the infant's diet, is accompanied by a loss of weight or a gain below the normal standard. 8. When this deterioration occurs earlier it may be the forerunner of the cessation of lactation, but well-directed treatment may improve the condition of the milk.

Hypertrophied Pharyngeal Tonsil, Atrophy of, at or about Puberty.—S. K. Merrick³⁷ states that he has never seen a hypertrophied tonsil atrophy spontaneously. Of fifty cases operated upon by him, sixteen were under 14 years of age while thirty-four were above that age.

Infantile Convulsions, Etiology of.—Frank Dyer Sanger²⁶ sums up an article upon this subject as follows: 1. Convulsions occur most frequently under the age of 2 years. There are two periods of frequency—under 1 month and between 6 months and 2 years. 2. The nature of a nerve reaction resulting in a convulsion is not understood, but it is probable that instability of nervous tissue at this period of life favors this reaction. 3. Convulsions are frequently observed in adult life, and result from autointoxication and other causes. 4. Convulsant substances may be introduced from without or generated within the economy.

Infantile Dysauxesis.—C. Fisch³⁸ describes a hitherto unrecognized cause of the condition to which he applies this term, the common name being “not doing well.”

Intubation.—Raoul Bayeux³¹ believes that repeated insertions of the tube will prevent the lesions of the cricoid which so frequently follow a single and prolonged intubation. He cites a case in illustration of his point.

Intussusception.—T. Pickering Pick,¹⁶ in an exhaustive article on this subject, states that the condition is not always easy of recognition. Irregular peristalsis is the most common cause, due to some irregularity in diet. Irritation from worms, and tumors, are other causes. The author believes that still another cause is a mechanical shake of the bowels. The sudden onset of severe abdominal pain, followed by vomiting and the passage of stools containing blood and mucus, and the presence of a sausage-shaped tumor in the abdomen, point conclusively to a case of intussusception. Unfortunately all these symptoms are not always present, or they may be indefinite. The pain may be disregarded by the mother. The vomiting is liable to great fluctuations, and occurs in about ninety per cent of the cases. It takes place only when food is introduced into the stomach, and rarely becomes stercoraceous until a very late period of the case. Tenesmus is rarely present in any marked degree, except in those cases of ileo-cecal intussusception where the invaginated bowel has reached the rectum or is even protruded from the anus. The passage of blood and mucus, or pure blood, does not occur in every case, and, when it does occur, may be due to other causes than intussusception. The abdominal tumor cannot always be detected, on account of distension of the abdomen by gas, or, if peritonitis has set in, the abdominal walls are tense and rigid. In fat, well-nourished children a small tumor may escape detection. As regards treatment, the author believes that we should try first by intestinal distension and by manipulation to reduce the invagination, and failing this we should at once proceed to perform abdominal section.

Invaginatio Ileo-colica.—Steinmeyer³⁹ reports a case in a nursing of 6 months, cured by discharge of a piece of intestine twenty-seven centimetres long, the intestine being passed on the seventh day, and consisting of ileum, cecum, vermiform appendix, and part of ascending colon.

Keratitis Parenchymatosa and Iridocyclitis Fibrinosa.—Swoboda⁴¹ reports the case of a child 14 days old who had this extremely rare manifestation of hereditary lues, together with epiphyseal separation of both humeri and pseudo-paralysis.

Mastoid Disease.—J. Brooke Ridley⁴² reports a case of cerebellar abscess following this condition with death, and gives an account of the necropsy.

Measles.—Möller⁴³ makes a contribution to the statistics of this disease. He had made a very full study of this subject from his own experience in Munich and from the literature. His conclusions are as follows: There is no real periodicity to measles epidemics; the carrying of the contagium and the presence of human material are necessary for the onset of an epidemic, as well as other as yet unelucidated factors; in Munich the measles death rate is higher in December, highest in May and June; no immunity exists at any age, but a diminished predisposition in infancy; almost the whole mortality lies

in the first five years of life, equally for both sexes; primary thoracic rickets trebles the predisposition of measles patients to catarrhal pneumonia and doubles the danger of this complication.

T. M. Allison⁴⁴ reports a case of measles with marked hyperpyrexia, the temperature reaching 109°. This was reduced by means of ice and antifebrin, but was followed by death.

Middle-ear Disease.—J. D. Simpson⁴⁵ treats of this subject in relation to disease of the nares and the nasopharynx. Jonathan Hutchinson⁴⁶ presents a clinical lecture on deafness arising from the residua of suppurative inflammation of the middle ear. The report³² of a case is given of an acute purulent otitis media complicated with retropharyngeal abscess.

Multiple Tumor of the Brain.—Henry Dwight Chapin⁴⁷ reports a case in a child of 2½ years in which, at the autopsy, three tumors of about the size of walnuts were found respectively in the basal surface of the left cerebellar lobe, at the head of the caudate nucleus on the right side, and in the substance of the anterior and posterior quadrigeminal bodies. Miliary tubercles were found scattered through the lungs, and the bronchial glands were enlarged and tuberculous.

Ophthalmia Neonatorum.—An exhaustive clinical and experimental study by Chartres⁴⁸ is summed up as follows: 1. The pathogenic micro-organisms found in the purulent ophthalmia of the newly-born are many and various. 2. Out of twenty-six cases the percentages are: thirty-six per cent pure gonococci; eight per cent gonococci with streptococci; twelve per cent Löffler's bacillus; twelve per cent micrococci; eight per cent pure streptococci; four per cent streptococci with the Löffler bacillus; four per cent streptococci with bacilli of unknown nature; four per cent pure staphylococci; four per cent undetermined bacilli; four per cent Weeck's bacilli; four per cent sarcinae. 3. The most serious cases are those in which there are pure streptococci, or where these are associated with gonococci or with certain bacilli, as the Löffler. In the cases studied these resulted in loss of sight, or were associated with some intercurrent disease, notably broncho-pneumonia, which caused death. 4. Purulent ophthalmia with pure gonococci is relatively benignant, and treatment is usually efficacious. 5. A bacteriological examination should be made early in the disease, and is of great importance in the prognosis. 6. Treatment should be energetic from the outset, and should consist of free washing with permanganate of potassium, lime, boracic acid, or other solutions, and cauterization with nitrate of silver. These agents act upon all varieties of microbes which may cause purulent ophthalmia neonatorum.

William Walter⁴⁹ has an article on the general considerations of the treatment and management of this disease. In addition to the usual forms of treatment, the author calls attention to other measures which he has found to be efficacious. He believes that we are accustomed to look upon ophthalmia

neonatorum as present only when the symptoms are intense, and to overlook the possibility that minor affections may be of like etiologic kind. Accoucheurs should never omit the post-parturition prophylaxis when there is the slightest discharge from the vaginal canal. Further, obstetricians should be less prone to delay the preventive treatment till after the opportunity has arisen for the implantation of the germs upon the sensitive and receptive conjunctiva. Regardless of the station of life of the patient, inquiry should invariably be made to ascertain if vaginal discharge is present in the pregnant woman, and treatment should be instituted early to relieve it. When the disease has become established in its intense form, overshadowing the integrity of the cornea and vision, the author is of opinion that quite as many eyes are lost because of the lowered vitality of the patients and the lack of attention to general treatment as by the excessive virulence of the infective micro-organisms. It is to be borne in mind that ophthalmologists are often localists rather than true specialists, and not attentive to the necessity of general treatment. The power of combating the infection *per se* lies almost entirely in the tissues themselves, and is sometimes weakened by a failing general nutrition which, aside from the disease itself, may be due to poor food or defective assimilation of foods or oxygen; deficient elimination through the skin, kidney, or bowel; or lack of proper and sufficient rest and exercise. Regularity of feeding, outdoor air and sunshine, daily bathing and massage, are, the author believes, most important adjuncts to the local treatment. Alvin A. Hubbel⁵⁰ makes a plea for the general use of measures to prevent ophthalmia neonatorum.

Peri-tracheo-laryngeal Abscess in Children.—The attention of Ferdinando Massei⁵¹ having frequently been called to the exit of pus during tracheotomy or intubation for croup, he has since made a special study of endolaryngeal abscesses, which, he is convinced, often simulate croup and in other cases merely complicate this disorder. The abscess is peritracheal rather than peri- or endolaryngeal, and is found at the first cartilaginous rings of the trachea. The symptoms caused by this abscess resemble those of croup, or, rather, of acute laryngeal stenosis. A differential diagnosis is often possible only by the use of the laryngoscope. Should this not be available the diagnosis of abscess will have to be made by the exclusion of glottic spasm, catarrhal laryngitis complicated by spasm, false croup, true croup, foreign bodies, and thrush. As a rule, the cases are seen too late to admit of treatment other than that for the relief of the suffocation, consisting of intubation or tracheotomy.

Posture in the Development of the Head of an Infant.—Harriet E. Garrison⁵² believes that any undue pressure upon the flexible bones of the infant will injure the brain if not counteracted by posture, which will relieve the pressure which even the lightest normal mechanism of labor entails upon every child.

Purpura.—Charles Levi⁵² describes a case of this disease consecutive to chronic broncho-pneumonia. Of late years purpura has ceased to be regarded as a morbid entity, but is now considered to be a symptom of various conditions. Microbes are usually present, but act in varying fashion. In some instances they give rise to toxins, which enter the circulation and by their action upon the vaso-motor nerves cause dilatation and rupture of the small cutaneous vessels. If the infective process originate in the digestive tract, poisons due to the incomplete digestion and the stagnation of alimentary matters are super-added to the toxins of bacteriological origin. This is what occurs in the purpura following the absorption of putrid meat, or digestive disorders in general, which may be called *toxic purpura*. In some other cases the microbes are carried through the circulation to the skin, where they may cause emboli or vascular lesions, or act through the production of toxins which affect the terminal vaso-motor nerves. The case reported belongs to the second or septicemic class of purpuræ.

Reflex Effects of Intranasal Disease in the Pharynx and Mouth.—Horace Clark⁵³ presents some cases of dysphagia resulting from intranasal disease, and discusses other reflex disturbances in the mouth and pharynx, such as hyperesthesia, paresthesia, or imaginary bodies, pain in the throat, paresis of the palate, and cases which are probably causes of chorea.

Ringworm, Chronic, of the Scalp.—L. Duncan Bulkley⁵⁴ states that the damage that this parasite may do in some patients is so slight that the disease is often overlooked, and undoubtedly there are many cases which go for years untreated, endangering those around them, both in institutions and in private life. *Tinea tonsurans* of the scalp is not always easy of diagnosis, and is especially difficult when it has lasted any length of time, for in these cases many of the hairs assert their vigor (although by the microscope they may present some evidences of the parasite) and will grow to considerable length, and the “stump” or broken-off hairs can be detected only by the most careful search. The physician should, therefore, be extra careful, whenever scaly conditions of the scalp are persistent, to determine with positiveness if the trichophyton is present. Generally three to six months will be necessary to effect a cure if the disease has obtained a strong foothold. Before discharging a case of ringworm as cured, every portion of the scalp should be thoroughly looked over with a hand lens of moderate power and with an abundance of sunlight.

Henry A. Pulsford⁵⁵ gives the results of treatment of ringworm of the scalp at the New York Skin and Cancer Hospital. The author states that the advent of puberty has often more to do with cures than the application of drugs. Nevertheless the records of this institution show that many cases have been cured by therapeutic measures. In all cases the hair is cut closely with the clipping machine, and the scalp freed from crusts and scales by scrubbing with the tincture of green soap.

preceded whenever necessary by soaking in oil. This is followed by epilation of the diseased areas and the use of antiseptic applications. Average duration of treatment is five and a half months. The oleate of mercury is used with much success, though it has failed in some cases.

Scarlatina.—A. Knyvett Gordon⁵⁴ reports a case treated with antistreptococcic serum. The case was a severe one and the treatment was followed by rapid recovery.

Scarlatina and Enteric Fever, Concurrent.—E. MacDowel Cosgrave⁵⁵ reports five cases occurring within eighteen months. All were well marked, the scarlatina being followed by free desquamation. The scarlatina, instead of increasing the severity of the enteric, rather seemed to abort it. The enteric also seemed to have a mitigating effect on the scarlatina. The severe invasion of the scarlatina may mask the enteric, so that if the temperature of the scarlatina keeps up and abdominal symptoms develop, the possibility of enteric being concurrent with the scarlatina should be borne in mind.

Staphylococcus Infections, especially in Childhood.—M. V. Hutinel⁵⁶ and M. Labbé⁵⁶ give a detailed study of the disorders due to this cause. These may be divided into four principal varieties: multiple abscesses, pemphigous or pustular eruptions, pseudo-erysipelatous lymphangitis, and disseminated cutaneous gangrene. The staphylococcus is the most frequently found of the micro-organisms, being present in the atmosphere, the ground, water, ice, or in the skin and in the cavities of the body. It may be said literally to besiege the organism and to be ever ready to penetrate into the slightest opening. Predisposing causes to infection by its means are age, resistance to its invasions apparently increasing with the years; acute and chronic diseases by their weakening influence upon the system, tuberculosis easily standing first in this category. Defective hygiene and poor alimentation contribute greatly to the susceptibility to infection. Local causes, such as the umbilical wound, small ulcerations of the malleolus and heel, the lesions following erythema of the buttocks and thighs, eruptive fevers and skin diseases, predispose to the disorder. Infection may also be developed by way of the mucous membranes.

Multiple abscesses may be situated in the skin or in the subcutaneous cellular tissue, the former being usually found on the face and scalp or on the buttocks and perineal region, the latter anywhere in the body, but especially where the cellular tissue is loose, as around the anus, in the popliteal space, etc. The superficial abscesses begin with a slight elevation of the skin, with a slightly diffuse base purplish-red in color, somewhat tense and painful. The elevation increases and becomes acuminated, soon becoming pustular and giving exit to a thick, abundant pus, after which cicatrization rapidly follows. The abscess varies in size from that of a pea to a walnut. There may be many and they may occur in groups of twelve or more, which upon healing are followed by a group in another situa-

tion. They may or may not be accompanied by fever. The deep abscesses originate as hard nodules, not painful to the touch. The skin situated above them becomes purplish, and there is puffiness of the surrounding parts. If left to themselves they usually open on the surface. Sometimes they cause fistulæ.

Pemphigoid eruptions are less frequent than multiple abscesses; they, as a rule, occur in connection with the graver forms of infection and usually terminate fatally. A macule first makes its appearance and gives rise to a phlyctena filled with a clear fluid, which usually becomes hemorrhagic or filled with pus, and in size varies from a pinhead to a bean. These phlyctenæ open spontaneously and become covered with a more or less thickened crust, which may become detached and leave an ulcerating surface.

Pseudo-erysipelalous lymphangitis may appear as an intense, dark erythema.

Infectious disseminated gangrene of the skin usually follows impetigo, ecthyma, cutaneous abscess, etc. Treatment of these conditions is of very little use. Children affected with a skin lesion of even benign appearance should be isolated, and all wounds, however small, covered with an antiseptic dressing. The patients should be given a bichloride bath 1:15,000 daily. Abscesses are to be opened and treated with antiseptic dressings (iodoform, salol, dermatol, bismuth, etc.) and the general condition improved by tonics.

Status Lymphaticus: its Prognostic Value in Children.—Galatei⁵⁷ reviews the literature and reports (a) the case of a 15-months-old child who died suddenly in convulsions after applications to the head for eczema—the autopsy showed edema cerebri; (b) another case in a boy of 4 years in whom death followed an antidiphtheritic serum injection. The status lymphaticus was proven in both children. The prognosis in these cases must be very guarded, as a very insignificant factor may cause a fatal ending. They are very prone to edema.

Streptococcus Septicemia.—Bernheim¹⁸ reports a case in a 12-year-old girl in whom the general blood infection followed pneumonia, and another in a 10-year-old boy who developed the septicemia after a very mild scarlet-fever attack. Streptococci were cultivated from the blood of both cases. The prognosis in such cases is never entirely bad, even when very severe symptoms are present.

Suprapubic Cystotomy for Adherent Stone.—H. J. Burwash⁵⁹ reports a case in which this operation was performed on a child 5 years of age with good result.

Tics or Habit Movements, Classification of.—In discussing this subject William Osler⁴ makes the following divisions: 1. Simple tic or habit spasm. These are the common cases of spasmodic movements, chiefly affecting the muscles of the face and neck, and which are to a certain extent under the control of the will. It seems in many cases to begin as a child-

ish trick. In many instances there are sources of irritation, such as adenoids or disorders of refraction, relief of which may be followed by cure. Under this head is also grouped a generalized tic or habit spasm—those cases in which there are sudden electric-like jerking of the muscles of the trunk and extremities, but which pass away with great rapidity. Both adults and children are affected. These habit spasms, whether local or general, often resist all methods of treatment, and, while never dangerous, are annoying and a source of worry. They should never be mistaken for chorea. 2. Tics with superadded psychical phenomena, or Gilles de la Tourette's disease. In this form, in addition to the ordinary motor disturbance of simple tic, there are explosive utterances and cries and imperative ideas. 3. Complex, co-ordinated tics. Many of these are forms of habit movements, which differ, however, from simple tic in the more complex character of the act performed; this may be one of every-day life, but which is repeated without obvious cause, and which in most instances can be controlled by an effort of the will. 4. Tic psychique. In this there is an imperative idea which is the psychical equivalent of, and has an origin similar to, the motor tic. Imperative ideas may be present for years without delusions, recurring automatically, often proving a source of worry, but rarely becoming more serious than other of the many every-day ideas which from habit we entertain.

Tracheal Wall, Covering of Defects in the.—König⁶¹ reports the case of a boy who, when 11 years old, had an attack of diphtheria necessitating tracheotomy. A fistula remained in the anterior tracheal wall, which was finally closed by plastic operation three years later. The literature of this subject is reviewed.

Tracheotomy, Intubation, and Antitoxin.—Charles Douglas⁵ reports two cases to illustrate the importance of being prepared to perform tracheotomy in case intubation fails.

Traumatic Neurosis.—Berduch⁵⁹ reports a case in a boy of 13 years, due to a fall from a ladder, striking on the shoulder. The boy also had an old atrophic condition of the same shoulder muscles, due to a poliomyelitis.

Tubercular Meningitis.—Henry Heiman⁶ reports two cases. In the first, while the cover-glass preparations did not show any tubercle bacilli in the spinal fluid, the inoculation of a guinea-pig gave positive results. In the second the withdrawal of a slight quantity of spinal fluid was followed by a temporary amelioration of the condition.

X-rays in Surgical Diseases of Children.—Ch. Rémy⁶² says that the bodies and limbs of children allow of the passage of the rays with more ease than those of adults, the resultant picture being smaller, but clearer and more exact. Much difficulty is experienced in keeping them quiet for the required time, but with the increased perfecting of apparatus this time is constantly being reduced. The author refers to a case in

which a foreign body was found in the esophagus by means of the X-rays, and extracted by esophagotomy. He believes that in children under 10 years of age it will be possible to find foreign bodies present in any part of body except the brain. The heart and lungs can be perceived by this means, liquid in the pleural cavity and tubercles in the lungs have been demonstrated, and he thinks that it should be possible to diagnose pleurisy in a young child. The rays are useful in determining affections of the bones and articulations.

REFERENCES.

- ¹ Med. Rev., Jan. 9th. ² Der Kinder-Arzt, vol. vii., No. 12. ³ Jour de Méd. de Paris, Jan. 17th. ⁴ Arch. Ped., Jan. ⁵ Arch. Ped., Feb. ⁶ Bost. Med. and Surg. Jour., Feb. 4th. ⁷ Pester Med. Chir. Presse, vol. xxxii., No. 19. ⁸ Atlanta Med. and Surgical Jour., Feb. ⁹ Med. Times and Hosp. Gaz., Dec. 26th, Jan. 2d, 9th, 16th. ¹⁰ Annals of Gyn. and Ped., Jan. ¹¹ Le Bull. méd., Jan. 20th. ¹² Northwestern Lancet, Jan. 15th. ¹³ La Méd. mod., Jan. 2d. ¹⁴ Wien. Med. Presse, vol. xxxvii., No. 50. ¹⁵ Quarterly Med. Jour., Jan. ¹⁶ Jahrbuch für Kinderhk., vol. xliii., Nos. 2 and 3. ¹⁷ Wien. Klin. Rundschau. ¹⁸ Lancet, Jan. 16th. ¹⁹ Brooklyn Med. Jour., Jan. ²⁰ Med. Rec., Jan. 23d. ²¹ Jour. de Clin. et de Thér. inf., Jan. 7th. ²² Jour. Am. Med. Assoc., Jan. 16th. ²³ Med. News, Jan. 9th. ²⁴ Atlantic Med. Weekly, Jan. 16th. ²⁵ Maryl. Med. Jour., Jan. 9th. ²⁶ Maryl. Med. Jour., Jan. 16th. ²⁷ Maryl. Med. Jour., Dec. 19th. ²⁸ Maryl. Med. Jour., Feb. 6th. ²⁹ Gaz. méd. de Nantes, Jan. 8th. ³⁰ Prager Med. Woch., vol. xxi., No. 50. ³¹ Jour. de Clin. et de Thér. inf., Jan. 21st. ³² N. Y. Med. Jour., Feb. 6th. ³³ Centralblatt für Kinderhk., vol. i., No. 9. ³⁴ Bost. Med. and Surg. Jour., Jan. 14th. ³⁵ La Presse méd., Jan. 6th. ³⁶ Kansas Med. Jour., Jan. 23d. ³⁷ Maryl. Med. Jour., Dec. 12th. ³⁸ Med. Rev., Jan. 2d. ³⁹ Wien. Med. Presse, vol. xxxvii., No. 52. ⁴⁰ Glasgow Med. Jour., Jan. ⁴¹ Wien. Med. Presse, vol. xxxvii., No. 51. ⁴² Lancet, Jan. 9th. ⁴³ Arch. für Kinderhk., vol. xxi., No. 4. ⁴⁴ Brit. Med. Jour., Jan. 9th. ⁴⁵ Northwestern Lancet, Jan. 1st. ⁴⁶ Clin. Jour., Dec. 23d. ⁴⁷ Cincin. Lancet Clinic, Jan. 9th. ⁴⁸ Arch. clin. de Bordeaux, Dec. ⁴⁹ N. Y. Med. Jour., Jan. 16th. ⁵⁰ Buffalo Med. Jour., Jan. ⁵¹ Arch. Ital di Laringologia, Jan. ⁵² Rev. mens. des Mal. de l'Enf., Jan. ⁵³ Jour. Am. Med. Assoc., Jan. 9th. ⁵⁴ Lancet, Jan. 2d. ⁵⁵ Brit. Med. Jour., Jan. 16th. ⁵⁶ Arch. gén. de Méd., Dec. ⁵⁷ Wien. Med. Blätter. ⁵⁸ Brit. Med. Jour., Jan. 9th. ⁵⁹ Chicago Med. Recorder, Jan. ⁶⁰ Maryl. Med. Jour., Jan. 23d. ⁶¹ Berlin. Klin. Wochen., vol. xxxiii., No. 51. ⁶² Jour. de Clin. et de Thér. inf., Jan. 14th. ⁶³ L'Obstét., Jan.

THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XXXV.

APRIL, 1897.

No. 4.

ORIGINAL COMMUNICATIONS.

A CRITICAL REVIEW OF SEVENTEEN HUNDRED CASES OF
ABDOMINAL SECTION FROM THE STANDPOINT OF
INTRAPERITONEAL DRAINAGE.

BY

J. G. CLARK, M.D.

Resident Gynecologist in the Johns Hopkins Hospital.
Baltimore, Md.

(With chart and six illustrations.)

PART I.

BRIEF NOTE ON THE GENERAL HISTORY OF DRAINAGE; HISTORY OF DRAINAGE IN THE GYNECOLOGICAL DEPARTMENT OF THE JOHNS HOPKINS HOSPITAL.

STRUCTURE AND FUNCTION OF THE PERITONEUM UNDER NORMAL CONDITIONS: (a) HISTOLOGY OF THE PERITONEUM; (b) ABSORPTION OF FLUIDS AND SOLID PARTICLES FROM THE PERITONEAL CAVITY; (c) THE MECHANISM OF ABSORPTION OF FLUIDS AND GRANULAR MATTER FROM THE PERITONEAL CAVITY.

DISPOSAL OF IRRITANT AND INFECTIOUS MATTER BY THE PERITONEUM. ETIOLOGY OF PERITONITIS.

OBJECTIONS TO INTRAPERITONEAL DRAINAGE: (a) TRAUMATIC AND CHEMICAL IRRITATION PRODUCED BY THE DRAINAGE MATERIAL; (b) RETARDATION OF HEALING; (c) DRAINAGE NOT EFFECTIVE IN REMOVING FLUIDS AND INFECTIOUS MATTER; (d) INFECTION FREQUENTLY OCCURS THROUGH THE DRAINAGE TRACT.

IN the following paper I propose to prove, from a review of 1,700 abdominal-section cases performed from the opening of

the gynecological department of the Johns Hopkins Hospital in 1889 up to October 1st, 1896, that not only is drainage valueless in the great majority of cases in which it has hitherto been used, and is still used by some surgeons and gynecologists, but that it is frequently productive of harm.

By clinical observation the conditions supposed to demand drainage have gradually reduced from a formidable number to a comparatively small one, and I am certain that this number is still too large.

The employment of a drain, as frequently stated by Dr. Kelly, is a confession of imperfect work on the part of the surgeon. That he is unable in some cases to make it better is true, but in many cases a more minute attention to the smaller details of surgical operation, with a greater reliance upon the ability of the peritoneum and general system to eliminate infectious matter, will overcome many difficulties which are now incorrectly supposed to be obviated by drainage.

I desire to thank Dr. Kelly for his constant interest and kind suggestions offered in course of the preparation of this report.

BRIEF NOTE ON THE GENERAL HISTORY OF DRAINAGE.

The history of the varying phases of the drainage question is too extensive for me to review it elaborately, and I shall, therefore, only refer to some of its more important epochs.

Ephraim McDowell, Nathan P. Smith, and Clay of England, obtained limited drainage by leaving the large, clumsy pedicle ligatures projecting from the abdominal incision.

The belief that the local gangrene of the stump gave rise to the septic matter in the abdominal cavity, which in turn produced the peritonitis and septicemia, was generally accepted by the earlier abdominal surgeons, and we find an elaborate article by Koeberlé in which he dwells upon its dangers.

Dr. Peaslee, of New York, more than twenty years ago proposed of this theory by forcible argument, and substituted his own well-grounded theories concerning the etiology of peritonitis and septicemia. He says¹ "that it will be found that septicemia after operation is actually produced by the absorption of a decomposing fluid into the blood from the peritoneal cavity, it being either of the following:

"1. It may be blood oozing, after the operation is completed,

¹ "Ovarian Tumors," 1872. AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN, 1870.

from surfaces to which the ovarian tumor has been adherent, or from its pedicle.

"2. Fluid from the tumor, which has been left by the operation in the peritoneal cavity.

"3. Ascitic fluid, left or secreted after the operation, in cases of ascites complicated with ovarian tumors.

"4. Pus in the peritoneal cavity, produced while some surface is healing by granulation."

It is only necessary to elaborate these conditions and to add a fifth, pyogenic infection, to complete the etiological factors in the production of peritonitis.

Peaslee attributed the septic symptoms to the degeneration of stagnating fluids, but we now know that these fluids are not dangerous in themselves, but only serve as culture fluids for infectious micro-organisms. As a means of removing these fluids Peaslee suggested drainage and intraperitoneal saline irrigations, through an opening in the posterior vaginal wall, into Douglas' cul de-sac.

He evidently recognized the irritant effect of plain water when introduced into the peritoneal cavity, and employed instead salt solution for the irrigations, which contained approximately the same proportion of saline matter as ascitic fluid.

The lucid arguments offered by Peaslee in support of his theories, coupled with the suggestion of a means for the removal of the degenerating fluids, at once attracted followers. Sims became an earnest advocate of this doctrine, and devised a silver vaginal drainage tube to be employed in every case after laparotomy. Schroeder¹ first objected to the theory of Peaslee and Sims, and claimed that peritonitis arose from infection of the matter collected in the peritoneal cavity, and that the prevention of peritonitis and septicemia did not lie in the removal of the fluid, but in the exclusion of the infection.

The mortality following ovariectomy, however, was so frightful that any means which offered the slightest hope of raising the ratio of recovery was eagerly sought for, consequently the principle of drainage prevailed and secured such a firm footing that a surgeon was seldom found bold enough to discard it.

So long as a surgical principle based upon a false theory obtains, the details of operations based upon it will be criticised because the results are not in conformity with those anticipated by the advocates of the principle. This is especially true of

¹ "Ueber Drainage des Douglaschen Raumes bei Ovariectomie," 1875.

drainage; method after method has been suggested and for a time more or less extensively employed and then discarded.

The methods which have been used most extensively are Koeberlé's glass tube, the Mikulicz gauze bag, Sängér's combined glass tube and wick drain, Martin's modification of Peaslee's vaginal drain, and Fritsch's simple gauze drain. In addition to these, many other materials have been suggested because of their supposed superior capillary drainage properties. Lister employed strips of lint soaked in carbolic-acid solution; other surgeons have used bundles of catgut, horse hair, glass, wool, and wick. Zweifel, Olshausen, and Czempkin have long protested against the use of any form of drainage and insist that it is always dangerous. Zweifel says the consideration of this measure should be relegated to surgical history—an opinion with which I am in full accord after a review of these 1,700 cases of abdominal sections from the standpoint of drainage. In Lande's remarks (1889) prefatory to the description of Sängér's combined drainage he says: "It is not the principle which is at fault, but the methods." I would reverse this statement by saying that it is not the methods which are at fault, but the principle.

HISTORY OF DRAINAGE IN THE GYNECOLOGICAL DEPARTMENT OF THE JOHNS HOPKINS HOSPITAL.

In the first Gynecological Report, issued in 1890, Dr. H. Robb summarized the conditions demanding drainage as follows:

"First, to provide a means of escape for the serous oozing which follows the separation of broad, adherent surfaces.

"Second, to guard against septic peritonitis from retained pus from the tube, ovary, or other viscus.

"Third, to remove fluid in cases of persistent capillary hemorrhage.

"Fourth, to provide against hemorrhage in cases of hysterectomy when the pedicle is dropped.

"Fifth, to drain the peritoneal cavity and starve out the disease in cases of chronic or tuberculous peritonitis."

As a consequence of all of these indications 73 per cent of the first hundred cases were drained with the Koeberlé glass tube. These tubes were straight, and varied in length from 12 to 15 centimetres, the diameter ranging between 8 and 12 millimetres. Ten to twenty small openings in the walls of the tube permitted the entrance of fluid. In some cases, when it was necessary to

reach Douglas' cul-de-sac, slightly bent tubes were used. Considerable trouble arose from the strangulation of bits of intestine and omentum in the fenestra of the tube until their size was reduced to 1 millimetre. After properly placing the tube its lumen was filled with sterilized wick or pledgets of cotton, to act as a capillary drain. The subsequent care of the tube and the time of its removal were subjects of much anxious thought, because the dangers of the tube as a means of infection were appreciated, but its supposed important rôle in removing infectious materials dominated all other considerations.

The general rule for the removal of the tube depended upon the amount of discharge from it: when this was only sufficient to wet the gauze or cotton plug it was no longer considered necessary. In his first article Robb speaks of the bacteriological examination of thirty drainage tubes, from only one of which a culture was obtained. He states, however, that there is a possibility that the growth of the organisms had been inhibited by the bichloride of mercury in the pledgets of cotton with which the tubes had been filled.

In a subsequent article by Robb and Ghriskey¹ the subject of infection through the tube was again discussed and the explanation offered by Robb for the negative results in his first investigations was confirmed. In a series of abdominal-section cases the pledgets of corrosive sublimate cotton were not used in the tubes, and no antiseptic drugs were employed in connection with the dressings of the abdominal wound. Sixteen cases were examined; in 9 the cultures were negative, in 5 the staphylococcus albus was found, and in 1 the staphylococcus aureus. Notwithstanding the most painstaking technique in the care of the drainage tube, 44 per cent of the cases showed some form of organism. The fears of the transmission of infection through the tube were further increased by one undoubted case in which infection occurred at the second dressing of the tube, followed by extensive suppuration of the abdominal wound. Still the necessity for the tube was considered unavoidable, and to offset its dangers more stringent rules were enforced concerning its care. The writers, in concluding their paper, said: "As the drainage tube is thus a source of infection, we believe it explains the cause of death in many instances where the patient has died of sepsis on the third or fourth day after operation."

The effect of the bacteriological investigations of Robb and Ghriskey, combined with a more extended clinical experience

¹ Johns Hopkins Hospital Bulletin, July, 1891.

with the tube, is shown in the second and third hundred cases, when only 57 and 48 per cent respectively were drained.

The faults of the tube by this time had become so manifest that it was almost entirely abandoned, and only 7 cases in the fourth hundred were drained; in 3 of these the glass tube was employed, and in 4 simple gauze.

Numerous accidents were attributed to the use of the tube. Suppuration of the abdominal wound occurred frequently; the convalescence of the patient was prolonged; post-operative abscesses formed in the track of the tube, with a persistent discharge through the sinus, or localized abscesses formed at the bottom of the tube which required a second operation for their cure; and hernia was a common post-operative sequel. All of these complications made a sorry record for the drainage tube.

Still the principle of drainage continued to hold sway, and we again see it more extensively used in the sixth hundred, when 32 per cent were drained. This represented the period when the Mikulicz gauze bag came into use. The forcible article written by the inventor of this method of drainage in advocacy of its employment in preventing the collection of blood in dead spaces, induced Dr. Kelly to try it in 40 cases, but it proved little more effective than the simple gauze, or glass tube. The pieces of gauze within the bag were easily removed, but the gauze bag itself was frequently very difficult to dislodge, and possessed only the slight advantage over simple gauze in checking oozing more effectually.

About this time Dr. Kelly began to call the principle of drainage into question. Already drainage was no longer employed in many conditions enumerated by Robb in his first article: now the question arose whether purulent conditions really required drainage.

Dr. Kelly about this time adopted a plan, like that suggested by Schauta, of having cover-glass preparations made of suspicious fluids at the time of operation; if organisms were found he used a drain. As organisms or bodies resembling them were frequently observed, the drain was again used in a larger proportion of cases, as shown in the twelfth, thirteenth, and fourteenth hundred series.

Later the great frequency of the infection of the drains, as demonstrated by bacteriological examinations carried out by Dr. Miller and myself, and the rarity of living pyogenic organisms in the diseased structures, as shown by Dr. Miller, caused

almost a complete abandonment of drainage as a measure of removing infectious matters from the peritoneal cavity.

STRUCTURE AND FUNCTION OF THE PERITONEUM UNDER NORMAL CONDITIONS.

In order to understand how pathogenic material in the peritoneal cavity is disposed of, a knowledge of the function and anatomy of the peritoneum under normal conditions is absolutely necessary.

An article by Muscatello,¹ in which he reviews the work of the best investigators before him and details his own research, covers the ground so well that I make no apology in offering a full abstract of his paper. In addition to this paper I have also drawn some of my conclusions from Wegner's and Meltzer's and Adler's investigations.

Histology of the Peritoneum.—Muscatello accepts the classification of the component parts of the diaphragmatic peritoneum made by Bizzozero and G. Salvioli (1876), who described the following structures: 1. Endothelium. 2. Membrana limitans. 3. Framework of connective tissue which sends out projections over the lymph spaces in a bridge-like form. Muscatello limited himself to the study of the diaphragmatic part of the peritoneum, for he especially wished to show the relationship of the endothelium to the lymph spaces in the diaphragm. No additional discoveries on the histology of the peritoneum were made over those of Rindfleisch, Bizzozero (1876), Tourneux (1874-1876), Ranvier (1891), and Kolossow (1892, 1893).

The endothelium consists of two layers—an upper exceedingly thin one (lamella superficialis) and a thicker layer of underlying cells. The individual cells of the endothelium are irregularly formed, and from their margins thread-like projections go out to unite with similar projections from other cells. Paladino (1883) and Kolossow (1892) noticed cilia on these cells. Until the publication of Muscatello's paper investigators were equally divided concerning the presence or absence of stomata between the endothelial cells. As a result of Muscatello's investigations, he coincides with those who claim that there are no stomata, for he was able to demonstrate that the openings which have been described are either the result of badly prepared specimens or are optical illusions. He exercised the greatest care in obtaining the pieces of tissue for microscopic inspection, and found that the supposed stomata

¹ Virchow's Archiv, 1895.

were due in some places to a slight retraction of the endothelium with a heavy deposit of silver salts at these points, and in other places to the same deposit in the body of a leucocyte which had wandered into the crevice between the epithelial cells.

A perfect microscopic picture shows the endothelial plates in close apposition to each other (Fig. 1). The limiting membrane upon which the endothelium rests consists of fine granules and connective-tissue striæ containing no cells. Between the connective-tissue fibres in the diaphragmatic peritoneum open spaces are situated (Bizzozero, Salvioli, Vincenzi) which measure 4 to 16 millimetres in diameter and occur in groups of fifty to sixty (Fig. 2). Muscatello is able to state positively that

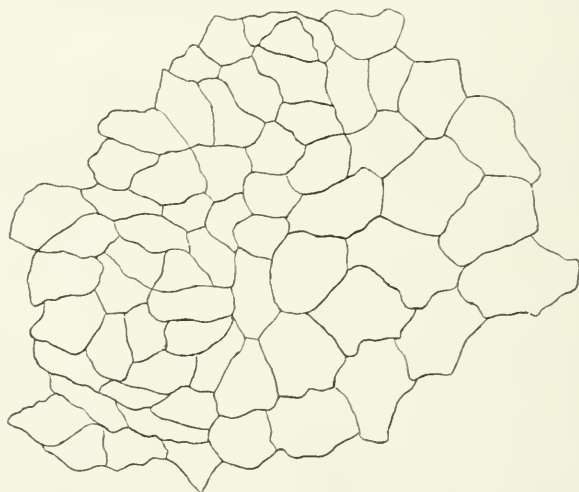


FIG. 1.—Normal peritoneal endothelium (Muscatello).

none of these spaces exist in the peritoneum covering the broad ligament, intestines, stomach, liver, spleen, pancreas, uterus, or anterior abdominal wall.

Absorption of Fluids and Solid Substances from the Peritoneal Cavity.—(a) *Absorption of Fluids.* The paths by which fluids are carried from the peritoneal cavity into the general circulation have been no less a matter for disagreement among physiologists than has been the presence or absence of the stomata between the peritoneal endothelium among histologists.

The investigations of Starling, Tubby, Orlow, and Heidenham and Hamburger lead one to believe that the lymph channels play an unimportant part in conducting liquids from the

peritoneal cavity, and that this task largely belongs to the blood vessels. After reviewing a recent article by Adler and Meltzer,¹ in which they take issue with the foregoing writers, one is inclined to coincide with them in the statement "that the lymph is carried into the circulation more readily and much earlier by the way of the lymphatics than directly through the walls of the blood vessels." Regardless of the channels of exit of fluids from the peritoneal cavity, the fact remains, as proved by all of these investigations, that large quantities of fluid may be absorbed very rapidly from the peritoneal cavity.

The quantitative absorption of fluids by the peritoneum was first worked out in an extremely interesting series of experi-

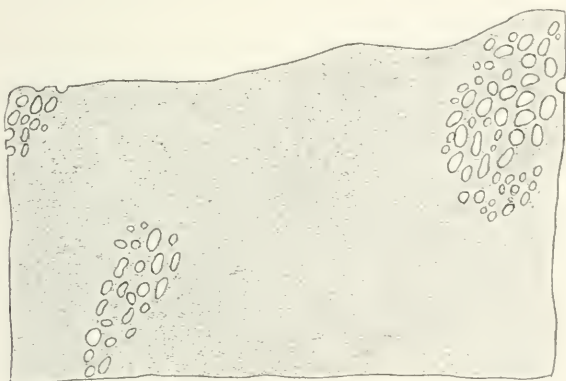


FIG. 2.—Lymph spaces in the diaphragm (Muscatello).

ments on dogs by G. Wegner,² the results of whose investigations may be summed up in the following conclusions :

1. The surface of the peritoneum is equivalent to that of the skin (17,182 square centimetres peritoneum, 17,502 square centimetres of skin surface).

2. It has an enormous absorbing function, taking up in an hour three to eight per cent of the entire bodily weight.

3. Under the influence of very toxic or irritant substances an equal transudation into the peritoneal cavity may take place.

(b) *Absorption of Solid Bodies.* In order to ascertain the method and paths of absorption of solid bodies, Muscatello injected fine carmine granules in suspension (15 cubic centimetres

¹ Journal of Experimental Medicine, vol. i., No. 3.

² "Chirurgische Beobachtungen über die Peritonealhöhle mit besonderer Berücksichtigung der Ovariectomie," Verhandlungen der deutschen Gesellschaft für Chirurgie (V. Congress, 1877).

of the fluid to 1 kilogramme of the animal's weight) into the peritoneal cavity of a dog suspended with head down. Within five to seven minutes after the injection the granules could be recovered from the retrosternal lymph glands—a phenomenon previously noted by Dubar and Remy. Muscatello observed that even before the carmine granules in the lymph vessels of the diaphragm were visible to the naked eye, the retrosternal and mediastinal glands showed evidence of their presence, but no trace of them could be found in the lymph glands of the pelvis and abdominal organs. At the end of six hours the diaphragm of the animal was beautifully injected, especially on the pleural side.

Other investigators had proved conclusively that minute bodies could be carried to the liver and spleen by the blood, but the question which Muscatello wished to solve was whether they were carried there directly from the peritoneal cavity by the lymph channels or by the blood currents. To ascertain this he injected carmine granules into the abdomen of a number of dogs and killed them in twenty, thirty, and forty minutes, and one and a half, two, and four hours after the introduction of the granules. The granules appeared in the general system of lymphatic glands as follows: in twenty minutes in the thoracic lymph glands; in one and a half hours in the glands at the hilum of the liver; in two hours in the spleen; while all of the other lymph glands in the abdominal cavity remained free until three hours had passed. The conditions were now reversed, the dog being suspended with head up, instead of down as in the previous experiments, in order to ascertain what influence gravity played in facilitating the absorption of the fluids. After five and a half hours the dog was killed. Carmine granules were not visible to the naked eye in any of the glands, but were found microscopically in the diaphragm, the retrosternal lymph glands, and the intrathoracic glands, but not in the glands of the spleen, hilum of the liver, pancreas, lumbar or aortic glands.

From these experiments Muscatello concludes that the granular bodies are carried first through the spaces in the diaphragm into the retrosternal and mediastinal lymph glands, from which they are emptied into the general blood current, and are then transported to the lymph glands in the various parts of the body. He accounts for their appearance first in the glands about the liver and spleen because these organs are very vascular and are the first supplied in the distribution of the blood to

the abdominal organs. The glands of the stomach also show an abundance of the granules, as do also the retroperitoneal glands, the former collecting the lymph from the stomach, the latter from all of the pelvic organs. Very few granules are found in the mesenteric glands, because each gland collects its lymph from a comparatively small area of the intestine. This quantitative estimate of the granules, by which those glands collecting their lymph from large vascular areas are found to contain a much greater number relatively than those in the mesentery, which collects from a small area, appears to me very conclusive proof that Muscatello has drawn the right inference concerning the method of distribution of foreign bodies by the blood currents to the lymph glands. One would naturally assume without question that the mesenteric glands—if these colored bodies were carried to them directly by the lymphatics—would be the first to show their presence in great numbers, for this organ is bathed with the colored fluid.

As the final results of his experiments Muscatello concludes that the diaphragmatic part of the peritoneum is the only place where the lymph from the peritoneal cavity is absorbed, and that the lymph glands of the mediastinum are the collecting organs for this area.

The Mechanism of Absorption of Fluids and Granular Matter from the Peritoneal Cavity.—v. Recklinghausen investigated the mechanism of the absorption of fluids in the peritoneal cavity of rabbits, and affirms that the fluid is taken up through the stomata between the endothelium of the diaphragmatic peritoneum.

Muscatello, of course, disagrees with him, for he, with other investigators, has proved that no such openings exist. His explanation of the mechanism is very ingenious and extremely interesting, and the facts are so well placed in his argument in favor of his views that one is constrained to agree with him. On microscopic examination of the precipitate deposited on the peritoneal surfaces, shortly after the injection of the carmine granules, Muscatello, as well as other observers, finds wandering cells interspersed among the granules, some lightly laden with one or two granules, others greatly distended by the foreign bodies (Fig. 3, 1). In addition to these leucocytes there are others which have not yet taken up their burden; occasionally one will see a granule too large to be surrounded by one leucocyte, and in these instances a number will come up to join forces and encircle the invader (Fig. 3, 2). The leucocytes are

found in greatest number beneath the omentum. From the peritoneal cavity Muscatello traced the leucocytes with their burdens through the intercellular spaces into the lymph spaces, thence into the lymph channels, and finally into the blood, by which they were deposited in the lymph glands.

While many empty leucocytes were found in the peritoneal cavity in the vicinity of the granules, when they reached the thoracic lymph vessels they always contained the foreign bodies. Free granules also appeared in the lymph glands and vessels. Muscatello, in his experiments on inverted dogs, proved that, notwithstanding the opposing force of gravity, there existed a lymph current toward the diaphragm, which, although much slower than when aided by gravity, nevertheless inevitably carried the leucocytes and granules upward into the intrathoracic lymphatics. He believes that openings between the endothelium are made for the passage of the leucocytes by the retraction of the protoplasm of the cells, because he sees the



FIG. 3.—Leucocytes laden with carmine granules. 1, Large granule surrounded by many leucocytes; 2, leucocytes distended with carmine granules (Muscatello).

cells distorted, with the nucleus lying much closer the side next the opening than is customary in the resting cells; the fine lines across the openings he takes to be the raylike processes which bind the cells together (Fig. 4). Whether the leucocyte insinuates itself between the endothelial plates and thus produces the openings, or whether the opening is produced by some inherent retractile power of the cell itself, he does not attempt to explain.

To summarize, I would state the points in the anatomy and function of the peritoneum which bear upon the subject of intraperitoneal drainage and the etiology of peritonitis, as follows:

1. Fluids and solids may pass through the endothelial layer of the peritoneum, the fluids in many places, the solid particles only through the spaces in the diaphragm.

2. Minute solid particles are carried from the peritoneal cavity through the diaphragm into the mediastinal lymph vessels

and glands, and thence into the blood circulation, by which they are distributed to the abdominal organs, to appear later in the collecting lymph glands of these organs.

3. Large quantities of fluids may be absorbed by the peritoneum in an astonishingly short time.

4. The leucocytes are largely the bearers of foreign bodies from the peritoneal cavity into the mediastinal lymph glands.

5. There is normally a force in the peritoneal cavity which carries fluids and foreign particles toward the diaphragm, regardless of the posture of the animal, although gravity can greatly favor or retard the current.

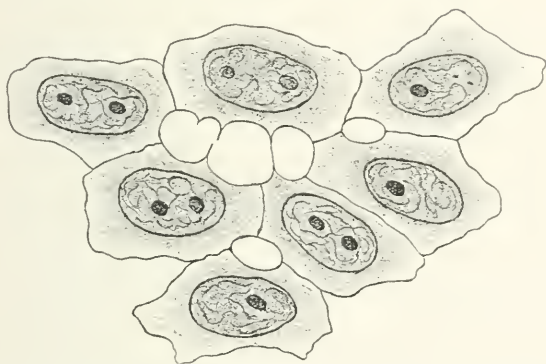


FIG. 4.—Openings produced by the retraction of the protoplasm in the endothelium of the diaphragmatic peritoneum (Muscatello).

DISPOSAL OF IRRITANT AND INFECTIOUS MATTER BY THE PERITONEUM.

From the foregoing paragraphs on the action of the peritoneum under normal conditions it is apparent that great quantities of innocuous fluids and solid particles may be removed very rapidly, and the query naturally arises: May the peritoneum dispose of infectious and noxious materials in a similar way? Fortunately a large number of excellent articles have been written on this subject, all of which show that the peritoneum is capable of removing and combating infection, and that there is probably no organ in the body where pyogenic organisms are more effectually destroyed than in the peritoneal cavity, provided it is unhampered by artificial conditions.

From our present view of this subject we cannot imagine more adverse circumstances against which the peritoneum is

compelled to labor than those adopted and carried out by many surgeons.

G. Wegner¹ endeavored from experiments on animals to come to some conclusion concerning the ability of the peritoneum to rid itself of irritant and infectious matter. He first injected fresh defibrinated blood, fresh urine, and other substances, without producing any visible reaction, either local or general. The injection of a concentrated solution of sugar or glycerin induced an enormous transudation of serum, sufficient in some cases to kill the animal. Insoluble materials in pulverized form were next introduced, when the smaller bodies were all removed and deposited in the lymph glands, while the larger ones were encapsulated. The introduction of fluids containing small quantities of micro-organisms was unattended by any visible systemic phenomena. Various degenerated fluids, such as the peritoneal exudate of a dog dead fourteen days, pus, etc., were injected with varying results; in some cases death followed, while in others the dog survived. The results of Wegner's experiments convinced him that a comparatively large quantity of infectious materials could be disposed of by the peritoneum without serious harm to the animal. The high mortality, however, following abdominal operations at the time of Wegner's publication, seemed to disprove his theories, and it required ten years' evolution in surgery to give results similar to those obtained in his experimental work.

Time proved that the fault lay with the surgeons, for operations were then performed without regard to cleanliness, crude methods were followed, and extensive oozing and traumatism of the tissue were common complications.

Grawitz² next took up the experimental study of infection of the peritoneum, pursuing his work under improved bacteriological technique. The results of his investigations, which appear to have been very thorough, were as follows :

1. The introduction of non-pyogenic organisms into the abdominal cavity, either in small or large quantity, or mixed with formed particles,³ produces no harm.

¹ "Chirurgische Beobachtungen über die Peritonealhöhle mit besonderer Berücksichtigung der Ovariectomie," Verhandlung der deutscher Gesellschaft für Chirurgie, Berlin, 1877.

² Charité Annalen, Jahrg. xi., 1886.

³ A solution of fecal matter containing solid particles was injected. The fluid was absorbed, but the larger particles were encapsulated without harm to the animal.

According to Grawitz, sterile fecal matter produces no disturbance, because it contains no irritant chemical substance.

2. Great quantities of organisms, which ordinarily produce no disturbance, may give rise to a general sepsis if the absorptive ability of the peritoneum is impaired.

3. The injection into the peritoneal cavity of pyogenic organisms may be quite as harmless as the non-pathogenic varieties. In these experiments he employed a flocculent emulsion of *staphylococcus albus*, *staphylococcus aureus*, and *streptococcus pyogenes* in 10 cubic centimetres of water, without any visible reaction.

4. The introduction of pus-producing cocci into the normal peritoneal cavity produces a purulent peritonitis, (a) if the culture fluid is difficult of absorption; (b) if irritating material is present which destroys the tissues of the peritoneum and thus prepares a place for the lodgment of the organisms; (c) a purulent peritonitis will certainly be produced if a wound of the abdominal wall is present which forms a nidus for the infectious process.

A small phlegmon of the peritoneum or purulent stitch canal communicating with the peritoneum is especially liable to be the starting point for a general peritonitis.

Pawlowsky¹ reviewed Wegner's and Grawitz's work, with whom he agreed in many particulars, but disagreed in others. The essential point of difference, however, between Pawlowsky and Grawitz related to the ability of the normal peritoneum to deal with the *staphylococcus aureus*. Pawlowsky found that the large quantities of staphylococci which Grawitz had injected without harm into dogs produced death very rapidly in the animals upon which he experimented, and that only a minimum quantity of a great dilution of the culture was harmless.

Reichel² went over the same ground as Grawitz and Pawlowsky in an experimental research, and in the main agreed with Grawitz. The chief points of value in Reichel's work are that kidney and malignant diseases predispose to infection; that peritonitis usually arises because more organisms gain entrance than can be handled by the peritoneum; and that stagnation of degenerating fluid in dead spaces favors the growth of the organisms. He also accounts for the conflicting results obtained by Grawitz and Pawlowsky on the ground that some animals are more susceptible to infection than others,

¹ Virchow's Archiv, 1889, No. 117, p. 469.

² "Beitrag zur Aetiologie und chirurg. Therapie der sup. Peritonitis," Deutsche Zeitschr. für Chir., 1889, vol. xxx.

and that there are marked differences in virulence of cultures of the same organism under varying conditions.

A carefully conducted experimental research by Waterhouse¹ under the oversight of Orth appears to me to settle satisfactorily the question of the ability of the normal peritoneum to take care of infection. He injected 6 cubic centimetres of a cloudy culture of staphylococcus aureus into the abdominal cavity of dogs, employing both the methods of Grawitz and Pawlowsky, and all of the animals survived. The same results were obtained with the streptococcus, bacillus pyocyaneus, and the intestinal bacteria. Waterhouse then endeavored to simulate the conditions often met with after operation, by introducing 8 cubic centimetres of urine and small quantities of blood with the cultures. Again the results were negative. But when 15 to 20 cubic centimetres of fresh blood were introduced into the peritoneal cavity, followed in a few minutes by the staphylococcus, severe peritonitis was produced.

In these experiments Waterhouse agrees with Pawlowsky that the danger of peritonitis is increased by tardy absorption, which in effect leaves a culture medium for the growth of the organisms. By the retention of the growing organisms in the peritoneal cavity irritation is produced by chemical products which injure the peritoneal epithelium. After the introduction of blood clots 3 cubic millimetres in size, followed by the staphylococcus aureus, death occurred from peritonitis in twenty-four hours.

He also found that the purulent exudate from acute abscesses is extremely virulent, 2 cubic centimetres of the staphylococcus and 1 cubic centimetre of streptococcus from this source causing death in forty-eight hours. If a very small quantity of the pus was introduced with water the animal usually survived.

After the introduction of turpentine with the organism, as done in Grawitz's experiment, peritonitis did not follow, which is explained by Waterhouse on the ground that the organisms are rendered inactive or are killed by the turpentine. If, however, the organisms are injected a short time after the turpentine, death from peritonitis invariably results. In three cases where the organisms were introduced into the peritoneal cavity of cats suffering from ascites, death from peritonitis was produced, as Waterhouse says, because there was a favorable culture medium, a diminished absorption, and an injury to the peritoneal endothelium. Dogs with a strangulation of the intestines were easily infected.

¹ Virchow's Archiv, 1890, vol. cxix., p. 342.

Burginsky,¹ in a series of experiments, also arrived at the conclusion that the discrepancies in the results of Pawlowsky and Grawitz could be attributed to variations in the virulence of the cultures used by these investigators.

Halsted² confirmed and extended the views of previous observers concerning the resistance of the normal peritoneum to infection, and called attention to the dangers of introducing pyogenic organisms in conjunction with non-absorbable bodies or about a ligated or strangulated area in the peritoneal cavity. Cultures of the staphylococcus aureus, which produced no reaction in suspension, invariably caused peritonitis when introduced on a piece of potato, while in control animals pieces of sterile potato were encapsulated with a thin fibrinous exudate and gave rise to no serious disturbance. In cases where the omentum was ligated and cultures introduced peritonitis invariably occurred.

A paper by Cobbett and Melsome³ on "Local and General Immunity" takes up the question of immunity produced by the injection of cultures of streptococci into the general peritoneal cavity, and some of their observations have a very interesting bearing upon the ability of the peritoneum to dispose of the organisms.

They make the following statement regarding the disappearance of the streptococci from the peritoneal cavity: "We observed that in those animals which succumbed quickest free cocci were very numerous in the peritoneal exudation, and in those which survived longest they were either absent or contained within phagocytes."

These investigators, in order to find out how quickly they disappeared from this situation in non-fatal cases, killed two rabbits which appeared about to recover. "In the first, which had received 5 cubic centimetres of broth culture thirty hours before, only one chain of free streptococci was found after prolonged search, but many cocci were contained in cells, and broth sown with this fluid grew a good culture. The second rabbit, having shown no signs of illness after an injection of 6 cubic centimetres of anaerobic broth culture, received next day 10 cubic centimetres of a similar material swarming with streptococci." When killed, five and a half hours later, not only could no streptococci be seen either free or in cells, but no

¹ Baumgarten's Jahresbericht, 1891, vol. vii.

² The Johns Hopkins Hospital Reports, 1891, vol. ii.

³ Journal of Pathology and Bacteriology, 1895.

growth grew on cultures made from the abdominal fluid. Concerning the question of local immunity they conclude "that the injection of streptococci or their products into the abdominal cavity confers immunity to a second injection, in the same situation, of more virulent cultures in quantities fatal to control animals. That intra-abdominal injections of attenuated cultures of streptococci confer a somewhat more imperfect immunity upon the rest of the body. That both local and general immunity are of short duration and do not last more than a few weeks."

The experiments of Cobbett and Melsome make more prominent the fact, brought out by previous observers, that even after the injection of virulent streptococci little or no peritonitis may be produced if the peritoneum is normal. The rapidity of their elimination and the method of disposal of the organisms by the phagocytes was also demonstrated.

From the collective literature cited in the preceding pages the following conclusions may be drawn:

1. Under normal conditions the peritoneum can dispose of pyogenic organisms in varying quantities, depending upon the virulence of the organism, without producing peritonitis.

2. The less the absorption from the peritoneal cavity the greater the danger of infection.

3. Solid sterile particles are partly absorbed, and the remainder is encapsulated without the production of peritonitis.

4. Death may be produced by general septicemia, and not peritonitis, where large quantities of organisms are taken up by the lymph streams.

5. Peritonitis may be produced if the culture fluid is difficult of absorption.

6. Irritant material which destroys the tissues of the peritoneum prepares a place for the lodgment of organisms and the starting place for peritonitis.

7. An infected stitch-hole tract or a localized phlegmon communicating with the peritoneum forms an excellent starting place for general peritonitis.

8. Stagnation of degenerated fluid in dead spaces favors the growth of organisms.

9. The presence of infected blood clots is especially liable to cause a virulent peritonitis.

10. Injury to the abdominal viscera, such as strangulation of an intestine, constriction and ligation of large areas of tissue

in the presence of pyogenic organisms, will almost certainly be followed by peritonitis.

ETIOLOGY OF PERITONITIS.

The question of drainage is so closely allied to the etiology of peritonitis that a brief reference to this subject is necessary to a proper understanding of the indications and contraindications for drainage. A review of the autopsy records of all cases of peritonitis dying in the gynecological wards of the Johns Hopkins Hospital shows that they conform largely to the types described by Pawlowsky in his experiments upon dogs. His classification is as follows:

1. An extremely toxic variety, in which the virulence of the infecting organism is so great that the patient is at once overwhelmed and dies within forty-eight hours with all the signs of shock. In these cases the peritoneum is covered with a slimy fluid containing a few blood corpuscles, fibrin flakes, and many bacteria.

2. Hemorrhagic peritonitis, in which the virulence of the infection is also very great. Varying grades of hemorrhagic extravasations, with a greater or lesser mixture of pus and masses of bacteria, are found.

3. Fibrino-purulent peritonitis, due to a less intense or slower infection, characterized by masses of fibrino-purulent matter, consisting principally of pus corpuscles and bacteria contained in the fibrin masses.

4. Purulent peritonitis consisting of much pus and fluid matter.

These classifications merely indicate the severity of the infection, all being forms of mycotic or infectious peritonitis.

In the purulent form of peritonitis the peritoneal cavity contains a large quantity of pus ; organisms may be abundant, but often they are not found when the patient is operated upon or goes to autopsy, because they have died out by that time. In the diaphragmatic openings large masses of bacteria, free and enclosed in leucocytes, are found, which prevent the absorption of the peritoneal exudate by occluding the opening and setting up inflammation in the adjacent tissues (Figs. 5 and 6). In the experimental research of Muscatello these openings are seen filled with the carmine granules, free and enclosed in leucocytes, while in Pawlowsky's pictures we find the bacteria taking the place of the carmine granules.

In the preceding pages I have gone rather extensively into

the physiology and anatomy of the peritoneum, with a view of making more clear my objection to intraperitoneal drainage.

OBJECTIONS TO INTRAPERITONEAL DRAINAGE.¹

Before the glass drainage tube had reached mechanical perfection numerous accidents occurred from its imperfect construction; small areas of omentum and intestine insinuated themselves into the fenestra of the tube, which not only caused great pain and distress to the patient, but rendered the removal of the tube extremely difficult and dangerous. The experiments of Waterhouse and Halsted, in which they produced an artificial strangulation of parts of the intestines and omentum, and then introduced pyogenic organisms with the invariable



FIG. 5.

FIG. 5.—Masses of bacteria filling the lymph spaces (Pawlowsky).



FIG. 6.

FIG. 6.—Masses of bacteria filling the diaphragmatic lymph spaces.

production of peritonitis, closely simulate the surgical conditions which may exist in drainage-tube cases. With the strangulated areas of tissue projecting into a tube which furnished an easy access to infection, the marvel is that any of these patients escaped serious peritonitis. If the mechanical dangers of the glass tube are disregarded, the objections to all forms of drainage are about equal, for, as has been said, we have a false principle to deal with rather than defective methods.

Traumatic and Chemical Irritation produced by the Drainage Material.—The effect of long-continued contact of

¹ In my paper which will appear in the Johns Hopkins Hospital Reports, a full report of cases which illustrate the objections offered to the employment of drainage in this paper will be found.

a foreign body with the peritoneum is to cause a destruction and exfoliation of the endothelium, followed by the escape of serum and leucocytes which quickly surrounded it with a fibrinous envelope. My attention was first called to the irritant effects of the drain by Dr. Flexner; who ascribed the inflammatory reaction adjacent to an iodoformized drain, in a fatal case of general post-operative peritonitis, to the chemical irritation of the iodoform.

Any material which is impregnated with chemicals sufficient to be of the least value as a germicide, if left in contact with the peritoneum will produce greater irritation than a simple sterile body. For this reason I do not think that the bichloride, iodoformized, carbolized, and permanganate gauzes should be used. The inefficiency of iodoform as a germicide has been demonstrated time and again in many practical and experimental studies, and the cultures which we have made from the iodoformized gauze drains have invariably grown luxuriantly, even from the very centre of a gauze roll. While the objection to iodoform as a chemical irritant is unquestionably slight, yet the weight of a straw in some cases may be sufficient to determine the fate of a patient. A mechanical or chemical irritation of the peritoneum sufficient to induce a reactionary inflammation, certainly reduces the resistant force of the peritoneum against infection in proportion to the extent of local injury.

Retardation of Healing.—One glance at the drainage chart which I have constructed from the 1,700 abdominal cases is sufficient to prove that local healing is retarded. Looking at the mere question of its effects upon the abdominal wound, we find that the percentage line of local suppuration conforms in the most remarkable way to the rise and fall of the drainage line. This retardation of the healing may be explained, to a certain extent, by the mere mechanical injury to the tissues from the presence of a foreign body like the gauze or tube; but the fact that in the discharge from the drainage tract and adjacent to it organisms are most often found which normally have their habitat in the skin, goes far toward proving that they are introduced with the drain or gain entrance after its insertion.

When an incision is closed without drainage, if there has been no undue injury to the tissues and the operation has been conducted aseptically, we always expect union by first intention. This statement was demonstrated in 122 cases of suspensio

uteri, in which the abdominal incision broke down in only one case.

Following the removal of a drain, healing in its tract can only take place by granulation process, which is necessarily slow, especially in those cases where deep cavities must be closed. For this reason alone the average number of days in the hospital of drained cases will invariably be greater than that of undrained ones. If the healing progresses satisfactorily, the drainage tract may be closed entirely within ten days; if, on the other hand, slight infection takes place, suppuration may result, and not only the tract itself but also the adjacent tissues may break down and thus prolong the patient's stay in bed many days.

Drainage not effective in Removing Fluids and Infectious Matter.—Autopsy after autopsy has shown that all forms of drainage are frequently valueless in removing fluids from the abdominal or pelvic cavity. The artificial efforts to remove accumulating fluid in the peritoneal cavity with a drainage-tube syringe, by mopping it out with pledgets of cotton, or by depending upon the capillary absorption of a gauze drain, are about as effective, compared with the absorbing ability of the peritoneum, as a tiny brook to a great river in draining a lake.

By the introduction of the drainage material the peritoneum is handicapped in three ways: first, the normal peritoneal currents are disturbed, consequently the circulation of fluids and foreign matter toward the diaphragm is retarded; second, a reactive inflammation is set up about the drain, limiting and impeding the action of the peritoneum; and, third, within a few hours the general peritoneum is cut off from all participation in the work of absorption by the wall of adhesions around the drain.

In place of the natural agencies the work is thrown upon an agent which at best can only remove the fluid from a small pocket. The old illustration cited in favor of drainage, of the gauze wick emptying a bowl of water by capillary attraction, is delusive. The syrup-like serous or bloody fluid, which quickly coagulates and fills up the meshes of the gauze, almost entirely checks the capillary action. A limited quantity of fluid will be removed during the first two hours, but after that the drain acts like a plug by preventing the outflow of fluid, which then accumulates in the dependent pockets. In many instances we have found these encapsulated collections of infected matter within a half-centimetre of a drained track.

The rate of absorption is so great in the active peritoneum that a large quantity of fluid and infectious matter, which may be present or introduced at the time of operation, may be eliminated through its normal channels before the drained cavity is shut off by adhesions. In two autopsies on drainage cases dying of peritonitis the drained field showed myriads of organisms, while that portion of the general peritoneal cavity walled off by adhesions in the immediate vicinity of the drainage cavity showed no trace of them. The advocates of drainage would cite these cases as demonstrating the efficacy of the drain in limiting the infection to the drained field.

In the light of experimental work such a conclusion is erroneous; it is impossible for a sharp dividing wall to be established between an infected and a non-infected area before the lymph currents have distributed the foreign matter more or less generally in the peritoneal cavity. To my mind the better explanation for this phenomenon is that the healthy peritoneum has successfully met the invasion of the infectious matter and has overcome it, while the drain has failed in its task of removing the micro-organisms from the encapsulated pocket. The experimental researches of Wegner, and Cobbett and Melsome, referred to on previous pages, by which the rapid elimination of organisms was proved, apply with special force at this point.

The experiments of all investigators have established the fact that there is a limit beyond which the peritoneum is unable to resist infection. Experience has taught that abdominal operations performed during the active stage of infection, especially of the puerperal types, in which infectious matter is left behind, often terminate fatally within a few hours from the most virulent forms of peritonitis, whether they are drained or undrained.

Two cases of streptococcus infection representing identical conditions were operated upon in our series, and both died within three days after the operation; in one a large drain was employed, and in the usual surgical sense was "very effective," yet the fatal progress was apparently in no way hindered.

Operations during the acute stage of a pelvic inflammatory process are especially dangerous, because even with the greatest care infectious matter will be liberated or left behind and thus gain a ready entrance into the general system, which is already greatly taxed, and may quickly cause a fatal termination. In organs like the vermiform appendix, where an early rupture into the peritoneal cavity may occur, operation may be indicated in the acute stage of the infection; but here the

chances for a clean operation are better than in the pelvis, where adhesions and infection of the adjacent structures are much more frequent accompaniments of inflammatory processes. Even in these cases it is better to delay operation if the acute symptoms are subsiding when the case is first seen. Out of the 4,500 gynecological cases admitted to the Johns Hopkins Hospital, only one patient died from peritonitis following rupture of a pyosalpinx, showing that the dangers of this accident are very slight and that it should not influence us in operating precipitately.

There is still another important reason for delaying operation until the acute attack is over. From Cobbett and Melsome's experiments on animals we may draw the conclusion that acute pelvic infections render the patient more or less immune to a similar infection, and if we wait until the acute process is over an operation is much safer, because even if the latent germs are liberated they may then have little or no injurious effect. To obtain the greatest benefit from this immunity the operation should, however, be performed as soon as possible after the acute symptoms have subsided, because it is of short duration, lasting in animals, according to Cobbett and Melsome, only a few days or weeks.

Infection frequently Occurs through the Drainage Tract.—The bacteriological investigation of Robb and Ghriskey, relative to infection through the drainage tube, in which they found a large proportion (44 per cent) of the tubes contaminated with some form of organism, emphasized the objection which other writers before them had insisted upon: that a more or less virulent infection might take place through this channel. The results of these investigations, and the proved inefficiency of the tube in removing the fluids, caused Dr. Kelly to abandon it in favor of gauze. While the gauze serves a better purpose in checking oozing, and in some other respects is superior to the glass tube, it is no less likely to be the means of transportation of bacteria from without. The bacteriological examination of sixteen abdominal gauze drains by Dr. Miller and myself has shown that in not a single instance was the entire piece of gauze free from organisms. While infections of the drain are usually mild and produce little or no harm, the 1,700 cases which I have reviewed show a small number where a fatal termination was caused in this way, and a large number in which more or less extensive local suppuration occurred. For the last three years a simple reduplicated gauze

drain, filling the cavity to be drained from the bottom to the top, has been used. In order to ascertain the point of infection in these drains. I have taken cultures from the upper, middle, and lower third of the drains.

The method of making the cultures was as follows: The projecting end of gauze, which lies loosely nested in the abdomen, was unfolded with sterile forceps, and from that portion next to the abdomen a culture was taken. The gauze was then half-way withdrawn, the folds unrolled, and a culture taken from the centre, after which the gauze was completely removed and the third culture taken from the end in contact with the bottom of the drained cavity. The first cultures were made upon agar, from which they were transplanted to the various differentiating media until a diagnosis was reached. We began the bacteriological study of these cases with the expectation of finding comparatively few contaminated drains, but, to our surprise, in every instance organisms were obtained from some portion of the drain.

The following table gives a summary of our results; the full bacteriological notes from which they are taken will appear in the *Johns Hopkins Hospital Reports* for 1897:

TABLE I.—INTRAPERITONEAL GAUZE DRAINAGE INTRODUCED THROUGH THE ABDOMINAL INCISION.¹

No.	Diagnosis.	Upper part.	Middle part.	Lower part.	Remarks.
1	Purulent peritonitis.	Staph. pyo. aureus.	No culture.	Bacillus proteus vulgaris	Wound healed slowly by granulation.
2	Perityphlitic abscess.	Staph. pyo. aureus and albus; streptococcus pyo.	No culture.	Same as upper end.	Wound suppurated. Fistulous track persisting for six months.
3	Appendicitis; suture of bowel.	Staph. pyo. albus; staph. pyo. aureus.	Same	Same	Persistent discharge for one month.
4	Pelvic abscess.	Staph. pyo. aureus.	No culture.	Same as lower end.	Persistent discharge for three months.
5	Myoma uteri; hysterectomy.	Air organisms.	Negative.	Negative.	Healed by granulation.
6	Tuberculosis of kidney.	Air organisms; staph. pyo. aureus.	Negative.	Staph. pyo. aureus.	Wound broke down; persistent discharge for six months. Sutures came away; three fistulous tracks.

¹ For full notes on these cases see the *Johns Hopkins Hospital Reports*, 1897.

No.	Diagnosis.	Upper part.	Middle part.	Lower part.	Remarks.
7	Hysteromyo- nectomy; adherent myoma.	Staph. pyo. aureus.	Negative..	Negative..	Healed rapidly.
8	Appendicitis.	Bacillus coli communis; staph. pyo. aureus; strepto- coccus pyo.	Same cul- tures as upper end.	Same cul- tures as upper end.	Fistulous track per- sisting for six weeks.
9	Cystic ovary; hydrosal- pinx.	Air organ- isms; streptococ- cus pyo.	Air organ- isms; strepto- coccus pyo.	Strepto- coccus pyo.	Persistent fistulous track for six months: suppara- tion of wound.
10	Pyosalpinx (duplex).	Air organ- isms; staph. pyo. aureus.	Same cul- tures	Same cul- tures.	Persistent sinus for several weeks.
11	Myoma uteri; hysterecto- my.	Staph. pyo. aureus.	No culture taken.	No culture taken.	Wound healed rap- idly
12	Carcinoma uteri; hys- terectomy.	Staph. pyo. aureus.	Same cul- ture.	Same cul- ture.	Wound healed very slowly.
13	Hemorrhagic cyst of spleen.	Streptococ- cus pyo.	Negative..	Negative..	Wound healed rap- idly.
14	Myoma uteri; hysteromy- omectomy.	Staph. pyo. albus.	Negative..	Negative..	Wound healed rap- idly.
15	Pelvic abscess.	Staph. pyo. albus.	Negative..	Negative..	
16	Pyosalpinx (ruptured).	Staph. pyo. aureus.	Negative..	Negative..	Wound healed slow- ly.

NOTE.—In only Cases 3 and 8 were organisms found at the time of operation.

In these cases the most scrupulous care was exercised in the dressings subsequent to the operations, and in some cases the dressings were not changed from the time the gauze was introduced until the cultures were taken. Notwithstanding these precautions, the drains, without exception, showed a growth in some of the tubes. In every instance control cultures were made, at the time of operation, from the pus in the inflammatory cases, and from the peritoneal secretions in the non-inflammatory cases, and were negative. In two cases organisms were seen on cover glasses, but failed to grow in culture.

From these positive results it would appear that a gauze drain will almost invariably become contaminated, the variety and virulence of the organism depending upon the cleanliness of the surrounding skin and to some extent upon the purity of

the air. Infection from germs floating in the air is probably not a common occurrence, and we therefore must attach most of the blame to the immediate environs of the wound.

None of the cases in the above table terminated fatally, but a number of them showed varying degrees of suppuration, from slight-superficial areas to deep tracks penetrating to the bottom of the pelvis. Cultures No. 9 were the most instructive in the table. Air organisms and streptococci were found in abundance in the superficial part of the drain; further down, beneath the abdominal wound, they became less abundant; and at the bottom only streptococci were found. The drain was removed on the fourth day after operation, when the patient immediately developed a higher temperature with a rapid and tense pulse. Her face was flushed and she became very restless. These symptoms, characteristic of an acute infection, quickly subsided, and the patient made a moderately good recovery, so far as her general constitutional symptoms were concerned; but extensive suppuration of the wound occurred, and a deep fistulous track was established which persisted for one year. In this case the drain was only used to control oozing, since nothing was shown on cover-glass preparations from the serous fluids in the Fallopian tube at the time of operation.

(To be continued.)

A NEW METHOD OF SUTURING THE ABDOMINAL WALL IN CELIOTOMY.¹

BY

CHARLES P. NOBLE, M.D.,

Surgeon-in-Chief, Kensington Hospital for Women,
Philadelphia.

(With plate.)

I DESIRE to report a new method of closing the wound in celiotomy, which I believe will give good results in all cases, and will enable the surgeon to deal successfully with cases of diastasis of the recti muscles, which heretofore have been most difficult to cure.

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, January 21st, 1897.

The following are the steps in the closure of the wound:

1. Closing the peritoneum with a running suture of fine catgut.
2. Closing the wound in the rectus muscle with fine catgut.
3. Suturing the aponeurosis so that the aponeurosis upon one side of the wound is brought over, superimposed upon, and sutured to that of the opposite side.
4. Closing the subcutaneous layer of fat with a running catgut suture.
5. Closing the skin with an intracuticular suture of catgut.

It is apparent that the new point in the method is the manner of suturing the aponeurosis.

Various operators have used the "mattress" suture in closing the aponeurosis, and report admirable results both as to primary union and the prevention of subsequent hernia. As is well known, when the mattress suture is employed the result is to bring the under surface of the aponeurosis of the two sides into apposition, and the cut edges, and perhaps a quarter of an inch of the aponeurosis from each side, are turned upward in the direction of the skin. It is apparent that when this method is employed the aponeurosis is shortened about half an inch. It appears to me, also, that when intra-abdominal tension is great there will be a considerable tendency for these apposed surfaces of aponeurosis to draw apart, and that this is the weak point in this method of closing the abdominal wound.

Heretofore I have employed a method of suturing the aponeurosis¹ which merely brings its cut edges in apposition; and the permanent strength of the abdominal wall depends upon union of these cut ends of the aponeurosis, together with a certain amount of support from the buried permanent silkworm-gut sutures. It has occurred to me that a more firm union can be secured by superimposing the aponeurosis of one side of the wound upon that of the opposite side of the wound, and suturing one upon the other. In the average case the length of the aponeurosis will be shortened not more than one-half as much as is done with mattress sutures, so that the tendency for the united ends to be pulled apart will be less than by that method; and it seems to me, further, that there is a mechanical advantage in the union of the fibres of the aponeurosis laid flat one upon the other, over that of the mattress suture which turns up the under surfaces of the aponeurosis for union.

The mechanical advantages of this method of closing the

¹ "Remarks on the Use of the Buried Permanent Suture in Abdominal Surgery," American Gynecological and Obstetrical Journal, December, 1896.

abdominal wound are especially manifest in those cases in which the recti muscles are widely separated one from the other, leaving only the peritoneum, aponeurosis, the fat and skin in the middle line of the abdomen. In such cases there is seldom or never a tense abdominal wall, as this condition is produced almost without exception by pregnancy or some other condition which greatly increases the bulk of the abdominal contents. In such cases it is at once apparent that the method of closing the abdominal wound herewith proposed presents many advantages. The abdomen should be opened in the usual way, and the sheath of the rectus muscles split upon each side until the two recti muscles are exposed. The peritoneum should be excised upon each side until the redundant portion is removed, as is done in herniotomy operations. This should then be sutured with a running catgut suture. The recti muscles should then be sutured with a running catgut suture. The aponeurosis upon each side should then be separated by dissection from the subcutaneous fat, and slightly from the rectus muscle upon each side, and then sutured by the method proposed. The conditions present in individual cases would make it advisable to vary the technique at this point. In cases having a great redundancy of aponeurosis a portion should be excised. It will not be necessary to make this excision in other cases. It is apparent that the aponeurosis of one side can be drawn over that of the other for half an inch or an inch, as may be necessary, with the result that the middle line of the abdomen will be reinforced by having two layers of aponeurosis instead of one for support, and that a broad surface of union of the aponeurosis will be secured. In such cases care must be taken in placing the sutures that the aponeurosis is kept flat, so that the two layers are neatly apposed the one to the other. More or less subcutaneous fat and skin should then be excised, and the skin wound closed in the usual way.

The aponeurosis should be systematically prepared for union. The fatty tissue should be dissected off from the upper surface of the aponeurosis upon the side which is to be underneath. In this way the fibrous tissue of the aponeurosis is laid bare. The dissection is best done with a knife. The aponeurosis upon the other side—which is to be sewed upon the opposite layer—should then be separated by blunt dissection from the rectus muscle. In this manner it can be insured that the fibrous tissue of the aponeurosis on one side will come in direct contact with that of the aponeurosis of the opposite side, and that

neither muscular tissue nor fat will intervene. This, I believe, is essential in order to obtain the best results.

In placing the sutures it will be found best to determine in the individual case how much overlapping is desirable, and the same is true with reference to the preparation of the aponeurosis for suturing. In order to have the aponeurotic layers smoothly applied one to the other, the suture should be introduced as far away from the edge of the upper layer of aponeurosis as it is desired to have it overlap. The sutures should then be introduced about an eighth of an inch from the edge of the layer which is to be drawn underneath. By this means the lower layer is prevented from puckering. The method of introducing the suture is to pierce the upper layer of aponeurosis from above downward; then pierce the under layer of aponeurosis from above downward, and again from below upward at an equal distance from the edge of the aponeurosis; and, lastly, to pierce the upper layer of aponeurosis from below upward. It is apparent that when this suture is tied it will draw one layer of aponeurosis over the other. A reference to the diagram will make clear the method of using the suture. It will also show that it has certain of the advantages without the disadvantages of the mattress suture. When a row of sutures corresponding to the first one has been introduced it will then be necessary to tack down the free edge of the upper layer of aponeurosis. This can be done either with the ordinary interrupted suture or by imitating the first set. This second row of sutures is not shown in the illustration. I have used silk-worm-gut sutures for the aponeurotic layer throughout.

In the paper already referred to on the use of the "buried permanent suture" I have reported two hundred and ninety-seven cases in which silkworm gut was used as a buried suture, with seven suppurations. In the same paper reference was made to the use of this suture in round-ligament operations and in herniotomies. By adding the number of operations for shortening the round ligaments (thirty), the number of inguinal and femoral herniotomy operations (eight), and the number of celiotomies done since the above paper was written (twenty-one), we have, January 19th, 1897, the sum total of three hundred and fifty-six operations in the anterior abdominal wall in which the buried silkworm-gut suture was used, with eight suppurations. In the eight cases which supplicated one hernia has developed. Among the two hundred and forty-eight cases which healed by primary union, only one hernia has developed,

and this operation was done for umbilical hernia in a large, stout woman. My experience with silkworm gut as a buried suture has been so satisfactory that I confidently recommend its use for this purpose to all those who practise aseptic surgery.

In conclusion I wish to point out that by the method of preparing and suturing the aponeurosis which I have recommended, in ordinary celiotomy cases, the firm union of the aponeurosis can be insured and the subsequent occurrence of hernia can be prevented. In cases of diastasis of the recti muscles the method will enable the surgeon to secure a firm abdominal wall with the recti muscles in apposition, and a sound union of the aponeurosis. This has not been possible by the methods hitherto in use.

1637 NORTH BROAD STREET.

TRANSPERITONEAL SIMULTANEOUS LIGATION OF BOTH
INTERNAL ILIAC ARTERIES FOR RECURRENCE IN THE
CICATRIX FOLLOWING VAGINAL HYSTERECTOMY
FOR CARCINOMA UTERI.

BY

W. R. PRYOR, M.D.,
New York.

MRS. P., æt. 29; married; no children and no miscarriages. Was seen by Dr. Noll in July, 1896. Family history good; no evidences of tuberculosis or syphilis. Upon examination Dr. Noll found "an ulcerated surface on the cervix uteri, about the size of a silver dollar, extending from the posterior edge of the os uteri externum backward, but not involving the vaginal wall. The surface of the ulceration was partly granular and partly covered by necrotic tissue, the slightest touch being followed by profuse bleeding. The uterus was freely movable, with no thickening of the broad ligaments. I made arrangements to curette. The scrapings were submitted to Dr. F. Ferguson for microscopical examination. The report stated that the growth was a typical epithelioma."

July 30th, 1896: Dr. Noll performed vaginal hysterectomy; rapid recovery.

October 10th, 1896: A slight thickening or infiltration was noticed around the edges of the cicatrix; this grew very rapidly.

The patient began to complain of severe pain in the back and right loin, and required morphia every day. The pain would appear toward evening and by midnight would become unbearable. Otherwise the patient appeared well; she remained in fair flesh, but suffered from nausea due to the morphia.

December 11th, 1896: Dr. Noll opened the abdomen, intending to clean out the pelvis and remove involved glands; but finding the involvement extensive and the adhesions many, he contented himself with making his operation exploratory. She recovered without a setback.

Dr. Noll kindly referred the case to me.

Examination.—Urinalysis negative, quantity not determined; patient in fair flesh; heart and lungs normal. The vault of the vagina is occupied by a soft, red, smooth, glazed, nodular growth extending along the entire scar; from this oozes a sero-sanguinolent fluid, copious and ill-smelling. Upon the least touch the nodular growth bleeds freely. The serous discharge is free enough to suggest an ureteral fistula of small size. Catheterization of the ureters by Pawlik's method failed, owing to the pain produced, but the right side of the bladder bled a good deal, although no force was used. By rectum the rectal mucous membrane was movable upon a large nodule which occupied the site of the vaginal vault. The rectum as a whole could not be moved, but the mucous membrane would glide beneath the mass when the finger was moved from side to side.

The vagina was packed with iodoform gauze to exert pressure upon the nodule in the vagina.

Operation, January 8th, 1897.—Cystoscopy in Trendelenburg's position, with direct inspection of the ureters. The bladder wall was very pale and anemic throughout the entire sub-peritoneal portion. The vaginal portion upon the left side was slightly injected from the left ureter to the middle line. The left ureteral orifice was of normal appearance and voided urine.

From the middle line past the right ureteral orifice and to the right lateral angle of the bladder the mucosa was deeply congested. Beneath the mucosa were solid nodules projecting into the bladder cavity, making slight elevations, the highest being about one-eighth of an inch. At several points there were breaches in the mucosa, as shown by blood-stained streaks. All of these were near the ureteral orifice and were probably made by efforts at tactile catheterization of the ureter. The right ureteral orifice was a very large slit, at least one-quarter of an inch long, and the opening was between two permanent

ridges. Careful inspection of the ureter failed to reveal any discharge of urine from it. The examining finger was inserted into the vagina and the nodule at the vaginal vault broken into. Quite free bleeding resulted and continued to the close of the operation. -

The patient was placed for abdominal section; umbilicus removed. The stitch scars produced by the previous celiotomy were curetted. Incision to the left of the abdominal scar from the pubic spines to the umbilicus. Omentum adherent throughout entire length of old incision, which had healed by primary union.

Upon the left side of the bifurcation of the common iliac, and extending down to the base of the broad ligament, was a smooth, symmetrical thickening which gave the lateral pelvic wall the appearance of being occupied by a subperitoneal neoplasm. There lay over this a knuckle of small gut, which was firmly attached to the vesico-vaginal scar. Upon the right side the vesico-vaginal scar was irregularly nodular and the nodules extended outward to the obturator foramen. The cul-de-sac was obliterated by firm adhesions. Taking in the hand the bladder and vagina and moving them about, they were found to form practically one hard mass which was very fixed. Before reaching the vaginal scar for inspection a number of adherent coils of small intestine and omentum had to be freed. I determined that the cancer had invaded the left iliac and obturator glands and the right side of the bladder, but that the extension upon the right was toward the obturator foramen only. The right ureter was tensely distended and measured at least one-third of an inch in diameter. I could detect no peristalsis. Evidently the infiltration upon the right side was sufficient to obstruct this ureter either wholly or until the pressure within the ureter and pelvis of the kidney overcame the obstruction. Picking up the peritoneum over the ureter, I incised the peritoneum. A grooved director was inserted into the opening and the peritoneum split for an inch down toward the base of the broad ligament. I then sought the internal iliac artery and exposed it for half an inch. When its sheath was thoroughly freed the aneurism needle was worked beneath it from below upward (from within outward). The ligature material was Japanese twisted silk, boiled for seven minutes in five per cent carbolic acid. The needle was withdrawn and two ligatures thus carried beneath the artery. Each strand was tied separately and the second portion of the knot com-

pleted by using both strands as one ("stay-knot" of Ballance and Edmunds). A third knot was also tied. The pressure used was about six pounds. Up to the point of occluding the vessel the narcosis (ether) had been very smooth. Upon securing the vessel the patient's breathing suddenly ceased and she was revived with difficulty by means of artificial respiration. The appearance of the woman was as of one succumbing to apoplexy, but the heart remained steady and the pulse never went above 100.

After resuscitating her sufficiently I proceeded with the operation. The ends of the ligature were cut short. The incision in the peritoneum was not closed over the ligatures. The artery was ligated one and a quarter inches below its origin.

Upon the *left side* I found the ureter normally placed and not enlarged. Its peristaltic action was apparent, and it was of natural size. The internal iliac was very deeply situated, being covered by the infiltrated glands and lymphatics. Great care was necessary in seeking the vessel, lest I should wound some small vessel and thus produce a degree of bleeding which would obscure the field of work. The ureter was lifted up above the artery by the glandular enlargement, and the space between the ureter and artery was occupied by the infiltrated tissues. Upon exposing the artery it was found lying beneath a network of interlacing veins—a condition indicating the presence of either a double internal iliac vein or else anastomosis between the internal iliac vein and obturator vein. The exposure of the artery was most tedious, as I worked deep down between most vascular and important structures. The anatomy was very intricate and the dissection most trying. The needle was passed as before and two ligatures drawn beneath the vessel. They were tied by the "stay-knot." Again, upon occluding the artery, the respirations ceased entirely, but artificial respiration was not necessary. The peritoneum over the ligatures was not closed.

The bifurcation of the left common iliac artery took place some distance above the pelvic brim, thus giving a very long internal iliac. It was tied quite one and a half inches below its origin.

The long abdominal incision was closed by silver wire, the skin and fat being left open. Iodoform gauze dressing. The oozing from the vagina ceased immediately upon tying both vessels. The patient revived very soon after being placed in bed.

January 11th : The patient suffers no pain either in the right loin or in the back. She takes no morphia.

Urinalysis.—Acid ; specific gravity, 1018 ; total solids, 3.6 per cent ; urea, 2 per cent ; phosphates normal ; chlorides normal ; indican normal ; albumin, a trace ; sugar, none ; bile, none ; sediment white ; one hyaline cast ; pus present in quantity ; epithelium from bladder and kidney ; uric-acid crystals, a few ; bacteria, none ; spermatozoa, none. I very much regret not having measured the urine before the operation. The patient is convinced it is much increased in volume, and is corroborated in this by the nurses. Patient has a muddy vaginal discharge.

January 22d : A careful examination of the vagina was made. I found that the vault of the vagina was free from nodule, this having entirely melted away. I can appreciate little if any decrease in the size of the general pelvic enlargement. The abdominal sutures were removed and the wound found rapidly closing.

February 8th : The patient has been out of bed since January 22d. She again experiences the pain in her back, but is free from loin pain. A vaginal examination shows the presence of a large, irregular growth projecting into the vagina, which bleeds easily. The pelvic enlargement is undoubtedly decreased in size. It will be seen that this condition is directly the reverse of that found two weeks after the operation. The patient is losing in general strength.

Highest temperature (rectal), $100\frac{1}{4}^{\circ}$ on second day. Highest pulse rate, 88 on second day. Urine : First twenty-four hours, eighteen and one-half ounces ; second twenty-four hours, twenty-seven and one-half ounces ; third twenty-four hours, forty-one ounces ; fourth twenty-four hours, fifty-one ounces ; fifth twenty-four hours, forty-seven ounces.

In reviewing this case up to the present time the most I can say is that she is generally improved over her state at the time of operation. Locally there is less of the vaginal nodule and the general pelvic involvement is diminished a little. It must be remembered that this is an exceptionally rapidly progressing type of cancer. Both the body and cervix were involved at the time of the vaginal hysterectomy by Dr. Noll, July 30th, 1896. Recurrence had taken place sixty days later, and December 11th the entire pelvis seemed to be involved.

The ligation has undoubtedly brought the extension to a stand for six weeks. That much has been gained, and only

that much. It is proposed to curette away the nodule in the vagina and at the same time make a cystoscopic examination of the bladder. The future history of the case will be reserved for another report.

At no time has there been the least evidence of slough about the buttocks. The patient has had no loss of bladder sensation and function.

The ligation had no deleterious effect upon the kidneys. I feared that throwing back upon the renal arteries so large a volume of blood might induce renal congestion. Instead of the urine decreasing in amount, it increased. This I explain by the shrinkage in the pelvic mass admitting free escape of urine through the obstructed right ureter.

In conjunction with this report the reader is referred to the article by me in No. 6, vol. xxxiii. of this journal. Although this, the first ligation of the internal iliac arteries for recurrence of carcinoma after a hysterectomy, has not checked the extension as much as I expected it would, it but teaches us that the operation should be performed as soon as the recurrence is noticed. In this case I could not remove the secondary growth, for not only was the bladder involved, but also those deeper (obturator, etc.) tissues which cannot with safety be removed.

In a case of recurrence seen early the cicatrix can be removed at the time the ligation is done. That *any* delay in the advance of the disease was noticed in my case is more remarkable than the fact of the recurrence. I find the pelvis, six weeks after the operation, less involved than when I ligated the vessels. Whether the gynecic surgeon will be forced to a position regarding the cancerous uterus similar to that occupied by the general surgeon toward mammary cancer, I cannot say. But I am convinced that vaginal hysterectomy for *clinically* evident cancer of the uterus is useless. Finding such a case, I shall always ligate the internal iliac arteries through the abdomen, and remove uterus, broad ligaments, and glands by a most careful dissection. In no other way do I believe we can furnish to our patients that immunity which is due them. It is very easy to remove the uterus by the vagina and then prove the indication by the microscope. But few cases come to us until the disease has so far progressed as to cause breaking-down in the involved tissues. The distinction between cases in which a diagnosis is made clinically and those in which the operation is performed because "she is 47 years old, has

a bad family history and a nasty leucorrhea, etc.." must be clearly drawn. My opinion is that in the former class we will have to content ourselves with palliative operations or else do the most radical and extensive removal of tissue possible, under the bloodless method which is secured by ligation of the internal iliac arteries.

In cases of recurrence after hysterectomy, and in cases where the broad ligaments and pelvic glands are already involved, any operation, can of course, be but palliative. If the ligation of the internal iliac arteries can hold in abeyance for even six weeks the march of a cancer which already has invaded the bladder and deep pelvic glands and has produced a nodule large enough to obstruct one ureter, it is reasonable to suppose that the operation will be still more effective when applied so early after recurrence that the operator can dissect out the secondary nodules.

15 PARK AVENUE.

POST-OPERATIVE EMPHYSEMA OF THE ABDOMINAL WALL.

BY

W. W. RUSSELL. M.D..

Associate in Gynecology, Johns Hopkins University.
Baltimore, Md.

THE discovery of the bacillus aerogenes capsulatus and its causative relation to emphysema occurring in all parts of the body compels us to a serious consideration of this condition when found complicating surgical cases, either before or after operation. An infection by the gas bacillus is usually attended by the most serious results, and in appropriate cases demands prompt operative treatment.

During the past year, in two of our cases, emphysema has been found in the tissues of the abdominal wall subsequent to laparatomies. In both the presence of the bacillus capsulatus aerogenes was at once suspected, the fact that the condition might be due to other causes not being recognized.

CASE I.—September 12th, 1895. N. W. W., aged 33; single; Ip̄ara six years ago, labor normal and without any subsequent trouble. Menstruation began at fifteenth year, regular, intense dysmenorrhea, aggravated during the past two years; flow free; lasts from six to seven days. Leucorrhea profuse; dis-

charge yellow and irritating. Family history is negative. No history of serious illness. Present sickness began five years ago with pain in lower abdomen and left ovarian region, which has been steadily growing worse; about two years ago the painful areas became sensitive to the touch. Urination frequent and difficult. Bowels constipated. Patient somewhat pale, thin, and decidedly neurotic. Heart, lungs, and kidneys negative.

Operation.—Trendelenburg position; suspension of the uterus for marked retroflexion. Uterus slightly enlarged. Tubes and ovaries not diseased. Incision closed by means of three layers of sutures: (1) peritoneum by continuous catgut suture; (2) fascia by silver-wire mattress suture; (3) skin by continuous subcutaneous catgut suture.

For twelve hours after operation patient was violently nauseated and vomited several times. Bowels were well moved on the fourth day. She complained of only slight pain throughout convalescence and was not restless. Temperature reached highest point on fifth day, 99.8° F. The pulse ranged from 65 to 90 beats per minute for eighteen days subsequent to operation. The dressings were removed for the first time eight days after operation, at which time the following note was made: "Right side of abdomen sensitive, not distended; left side uniformly distended, sensitive; a distinct crepitus can be elicited; at the same time bubbles of gas are felt radiating from points at which pressure is made. Union of wound perfect."

In a few days the emphysema, which was first noticed to the left side of it only, had completely surrounded the incision and then spread in all directions under the skin, upward to the costal margin, downward to the symphysis pubis and Poupart's ligaments, and laterally well into the flanks. The skin itself did not show any change, nor was any induration apparent beneath it. Cultures and cover-slips made from a small incision through the skin proved negative. When the patient left the hospital, about five weeks after operation, her general condition was excellent and the emphysema had entirely disappeared.

CASE II.—November 11th, 1896. E. J., aged 38; married seventeen years; Ipara, labors normal, last child 16 years old. Menstruation began at thirteenth year, regular until four months ago; ceased for three months, then reappeared, not painful; flow lasts two or three days. Leucorrhœa for past three weeks, tinged with blood, offensive, not irritating. Family history negative. No history of serious illness. Present sickness

began three months ago with pain in back and lower abdomen. Urination frequent; bowels constipated. Patient of spare habit, suggestion of cachexia, mentally deficient. Heart, lungs, and kidneys normal. Vaginal examination revealed an epithelioma of the cervix, the diagnosis being substantiated by a microscopic examination of curetted particles.

Operation.—Pan-hysterectomy: Trendelenburg position. In cutting through the peritoneum an opening about one centimetre in length was inadvertently made into the small intestine, allowing the escape of a small amount of feces in the neighborhood of the abdominal incision. The accidental wound was immediately closed with silk mattress sutures. The removal of the uterus and glands was accomplished without difficulty; but in severing the right uterine artery close to its origin the ureter slipped between the blades of the scissors and was not discovered before it had been cut transversely for about two thirds of its diameter. The edges were united by lateral silk mattress sutures. The abdominal cavity was thoroughly irrigated with normal salt solution, and the incision closed as in the preceding case.

Nausea and vomiting persisted until the fourth day, when the bowels were thoroughly moved. The pain was not greater or the restlessness more marked than would be anticipated after such a prolonged and serious operation. At noon on the day succeeding the operation the pulse rate reached 130 beats per minute, but toward evening fell to 108. From this time until the seventeenth day it ranged from 90 to 120. During this period there was a constant irregular elevation of temperature, the maximum, 102.4° F., occurring on the seventeenth day, after which time it dropped to normal and remained so until the patient was discharged. On the eighth day the dressings were removed for the first time. About the middle of the incision some swelling and redness were discovered. Pressure on both sides of this area caused the edges of the wound to separate, and a considerable quantity of very offensive pus was discharged, the cavity from which it came being found to extend toward either end of the incision and deep into the abdominal wall. Decided induration could be felt surrounding the wound, and pressure elicited pain. Beyond this, to the left of the incision over an area extending out to the flank, downward to Poupart's ligament, and upward to the costal margin, a distinct crepitus could be felt beneath the skin. This region was not sensitive and did not show any signs of inflammation.

On the eleventh day the incision was found open from end to end. The fascia and muscles were exposed and the wound was filled with pus having a strong fecal odor. The emphysema had almost entirely disappeared. Four weeks after the operation the incision had all but closed, and no crepitus could be elicited in the left side. The right ureter, which was cut during the operation, was catheterized before the patient was discharged from the hospital, but no evidence of a constriction could be made out. The patient's condition greatly improved.

At the time the second case was under observation the third number of vol. lxiii. of the *Archiv für Gynäkologie* appeared, containing an article on this subject by Heil, who cites about twenty cases found in the literature, and gives the results of his experimental work on animals and human bodies, which prove that the emphysematous condition may possibly be due to air retained in the abdominal cavity, which has later gained access, through an imperfectly closed incision, to the subdermal connective tissue.

Winter was the first to describe, in 1889, emphysema of the abdominal wall complicating laparatomies, and in a discussion on the technique of laparotomy before the Berlin Gynecological and Obstetrical Society reported two cases. He believed that the air left in the abdominal cavity could by its contained organisms infect the blood or other nutritive substances and cause peritonitis. In his first case the widespread emphysema was associated with an induration in the same region and the patient had fever which persisted for several weeks. The emphysema in his second case developed suddenly during an attack of vomiting just after the operation had been finished. It spread quickly over the abdomen, but was controlled by the hand of an assistant pressed firmly over the incision. In this case neither fever nor induration was present during convalescence. The wound healed per primam in both cases.

Madalener next reported two cases, and claimed that the posture with the hips elevated was a predisposing moment in the origin of the emphysema, in that the gravitation of the intestines toward the diaphragm created in the lower portion of the abdomen a space which naturally became filled with air. He believed that, by lowering the patient to the horizontal before closing the incision and thus causing the intestines to return to their normal position, the air might be forced out. In one of his cases the crepitus could be elicited over the whole abdomen and as high as the axillæ. The skin over this area was pale

and slightly sensitive, and upon percussion a faint tympanitic note was obtained. He had a similar experience to that of Winter in observing the development of emphysema while closing the incision.

Graefe, while agreeing with Madalener that the Trendelenburg position helped to cause the complication, argued that simply lowering the buttocks of the patient to the same level as the head was not all that was necessary to clear the abdomen of air. He advocated strong pressure on the walls during the closure of the incision. Leopold and Brosin had already proved that the condition could arise after operations with the patient in the horizontal position.

Heil, after observing a case in which the emphysema had developed after an operation in the horizontal position, and also in which vomiting had not occurred until the third day, undertook a series of experiments, the results of which proved that position and vomiting were merely predisposing factors and that the condition could only develop after imperfect closure of the incision. These experiments were as follows: He made an abdominal incision in the linea alba of guinea-pigs in the horizontal position, and then, by holding the edges of the wound widely apart, allowed the air to gain access to the peritoneal cavity. One-half of the incision was then closed with great accuracy, silk sutures being passed through all the layers, while alternating superficial ones were placed in the skin. In the other half the peritoneum and fascia were not sutured, and the muscles only imperfectly, while the skin wound was closed by a continuous catgut suture. He then either allowed the animal to rest quietly or made pressure upon the abdomen on both sides of the incision, with the result that in both instances within from five to ten minutes, around that part of the wound in which the deep layers were not united, emphysema was clearly demonstrable, while about the other half not the slightest trace could be discovered. These experiments were repeated many times with similar results.

Recognizing that the structure of the abdominal walls of guinea-pigs is exceedingly favorable for the development of emphysema, from the fact that the skin and muscle are united by a very loose connective tissue, Heil repeated his experiment upon the body of a child and met with similar results. He therefore felt justified in concluding that the character of the suture, and especially the insufficient union of the deep layers when coupled with complete closure of the skin surfaces, are responsible for emphysema following laparatomies.

Why the condition should have so long escaped the notice of abdominal surgeons it is difficult to explain, when we consider the hundreds of cases which are yearly operated upon. Our two cases are the only instances of which we have knowledge in about eighteen hundred abdominal sections. It may be suggested, with some plausibility at least, that formerly drainage was employed in almost every abdominal operation, thus giving the air abundant opportunity to escape; while, since aseptic surgery has permitted of the complete closure of the wound, and the dressings are often not removed until several days have elapsed, by the time that the incision is first inspected the emphysema, if it had been present, could have completely disappeared.

According to Leopold the main symptoms arising from this condition are rapid pulse, restlessness, and sensitiveness over the affected area. In our cases, and from what can be determined from those reported elsewhere, this statement has not received full substantiation. The pulse in our first case was not accelerated at any time during the convalescence, neither was excessive restlessness noted. The temperature and rapid pulse in the second case were undoubtedly due to the severe wound infection. Sensitiveness of the skin over the affected area is more constant and was present in one of our cases.

Winter's case, in which the abdominal wall was indurated and the patient's temperature elevated, is to be explained, as in our second case, by a coincident infection.

The emphysema, though sometimes confined to a small area, may involve the entire abdomen and chest. Thus far it has only been observed in the connective tissue between the skin and muscles; never, as Leopold suggests, between peritoneum and muscle.

The chief interest in this condition is the possibility of its being due to an infection by the *bacillus aerogenes capsulatus*. The local signs of a simple emphysema do not indicate an infectious process. There is no redness, induration, or destruction of the tissues, and in nearly every instance the incision healed per primam. On the other hand, an infection by the gas bacillus causes intense local reaction and the general symptoms of an acute inflammatory process.

Among the cases collated by Drs. Welch and Flexner are several following perforation of the gut, showing that the organism must exist in the intestine. This fact is of particular interest when one considers the frequency of intestinal injuries

in abdominal operations. In our second case the gut was inadvertently opened and feces discharged upon the wound surface.

The air usually disappears within two weeks. Leopold advises incision to allow of its escape, if the pulse becomes rapid; but since in uncomplicated cases the condition is perfectly harmless, any interference would seem to be unnecessary. On the other hand, if signs of infection are present the case demands most careful attention, especially when the gut has been injured during operation. Cover-slip preparations and cultures should be made, and, in case the gas bacillus is demonstrated, free incisions and irrigation with some strong germicidal solution might be useful.

1503 MADISON AVENUE.

THE NECESSITY FOR EARLY INSPECTION OF THE VAGINA IN PUERPERAL SEPSIS.¹

BY

RICHARD C. NORRIS, A.M., M.D.,

Lecturer on Clinical and Operative Obstetrics, Medical Department University of Pennsylvania; Physician in charge of the Preston Retreat; Gynecologist to the Methodist Episcopal Hospital; Obstetrician to the Philadelphia Hospital.

THE case whose history is herewith presented is reported to exemplify the disaster that sometimes follows neglect to systematically and carefully examine the vagina in every case of septic fever after labor. In all the cases of puerperal sepsis that I have seen in consultation with general practitioners, the attending physician had neglected to ascertain whether or not there were hidden areas of infection and ulceration of the vaginal mucous membrane. Very often the uterine curette had been employed and the uterus had been douched by the doctor in attendance, but in no instance had the vagina been carefully inspected to determine whether the source of infection was located in the vagina and not in the uterus. The practical importance of this subject, and the surgical problems involved in the treatment of some cases of puerperal sepsis, induce me to present the following history:

Mrs. R., *IIpara*, *æt.* 29, was delivered naturally November

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, January 21st, 1897.

3d, 1896. Her attending physician stated that nothing abnormal was observed until ten days had passed, when there was a free discharge of blood. The morning temperature at this time was 101° F. and the pulse 85. Throughout the next nine days the temperature ranged between 102° and 105° F.; the pulse was never above 100, but there were repeated chills. On three occasions the uterus had been curetted and douched, and by these means only a few blood clots had been removed. The lochia had not been offensive. I was asked to see the patient on the twentieth day after her delivery. Her temperature was $105\frac{3}{5}^{\circ}$ F. and her pulse 142. The intense pain and tenderness in the left ovarian region prevented a thorough examination, but I was able to detect infiltration of the left broad ligament, enlargement of the left tube and ovary, and the finger plainly felt ulcerated areas at the base of the left broad ligament and in front of the cervix.

The abdomen was not tympanitic, the abdominal muscles were not rigid, and the patient's facies was not that of diffuse peritonitis. She was immediately sent to my ward at the Methodist Hospital and was prepared for the operation, which was performed at 11 P.M. Preparations were made for either vaginal or abdominal section, the choice to be determined after careful examination under ether. That examination found the uterus freely movable and the right tube, ovary, and broad ligament apparently normal. The base of the left broad ligament was densely infiltrated, and its anterior and posterior surfaces, held between two fingers, were separated to the extent of an inch. An enlarged tube and ovary, the size of a large pear, were plainly outlined bimanually at the upper edge of the left broad ligament. The abdomen therefore was opened, and a few recent adhesions between the intestines and the left tube and ovary were separated. The enlarged ovary and the thickened tube, whose fimbriated extremity contained a few drops of pus, were deeply congested and velvet-like in appearance. The broad ligament was half an inch thick throughout its entire length and breadth. It was infiltrated, hard, and at no point presented any sign of pus formation. The infiltration had invaded the subperitoneal connective tissue of the lateral pelvic wall and that of the pelvic floor, and extended posteriorly to the false pelvis and upward toward the kidney. The uterus and the right tube, ovary, and broad ligament apparently were normal. This fact, and the danger of laying open extensively the infected broad ligament, contraindicated a hysterectomy. The

tube and ovary, from which infection was beginning to spread to the peritoneal cavity, had to be removed, and the stump left after tying the broad ligament, filled doubtless with innumerable micro-organisms, was surrounded with gauze placed so as to wall off the peritoneal cavity as much as possible. A glass drain was also placed in the cul-de-sac. Having thus disposed of the infected tube and ovary, the next problem was to decide how best to deal with the infected broad ligament. There was no collection of pus that might be drained through an extraperitoneal incision either along Poupart's ligament or through the vagina, both of which incisions I have seen prove successful for extraperitoneal puerperal abscesses. The absence of pus made me hope that resolution might yet occur, and, if a general peritonitis could be prevented and the patient be freely stimulated, that she might survive. Furthermore, should an abscess form between the layers of the broad ligament at a later period, extraperitoneal drainage could then be obtained. With these thoughts in mind, and in the presence of a desperately ill woman whose heart was badly affected by the ether, I rapidly closed the abdomen. The morning following the operation the temperature had fallen to 99° F. and the pulse to 84. Within a few hours, however, there appeared the wide variations in temperature observed in the lymphatic and phlebitic forms of puerperal sepsis. Despite free stimulation with large quantities of whiskey and champagne, with free doses of strychnine, digitalis, quinine, and predigested food, the patient died four days after the operation and almost four weeks after her confinement. The dose of poison had been too large and surgical assistance had come too late.

The autopsy in the case was especially interesting. In the first place, it demonstrated the value of the free use of gauze to localize infection. The general peritoneal cavity and the intestines had been protected. There was no peritonitis beyond the protecting wall of gauze. In the second place, it showed the origin of the infection, and amply proved the disaster that may follow neglect to promptly treat infected wounds of the vagina before irretrievable damage occurs. The uterus, broad ligaments, bladder, and upper segment of the vagina were removed entire. Examining the specimens, you will find on the anterior and lateral vaginal walls three areas of ulceration. The upper margin of the largest ulcer is one inch distant from the anterior lip of the cervix; the ulcer next in size is situated at the margin of the posterior cervical lip and extends into the

cervical canal; the third ulcer is located at the base of the left broad ligament, in the left lateral fornix of the vagina.

The uterus shows no sign of infection, in spite of the fact that on three occasions this patient was unnecessarily curetted, the manipulations having been performed through an infected vagina. In contrast to this case are two other cases recently under my care, in which cases vaginal infection was promptly recognized and treated, with a prompt decline in the temperature and a safe convalescence.

In cases of septic fever after labor it is my invariable practice to inspect the vagina from cervix to vulva, using for this purpose a sterilized bivalve speculum and, when necessary, a reflected light or electric head light. Ulcerations or necrotic areas are cleaned and then cauterized with a fifty per cent solution of chloride of zinc or silver nitrate, one drachm to the ounce, and vaginal douches of a two per cent solution of creolin are thereafter used for several days.

The great value of employing such treatment I very well know, and I have seen at the hands of other men the serious consequence of neglecting these routine examinations.

When an accumulation of pus is confined between the layers of the broad ligament, an extraperitoneal incision along Poupert's ligament or through the vagina is certainly the proper treatment. When, however, the infection has been of such violent character as not to quickly produce suppuration, but rapidly to spread through the lymphatics and connective tissue, an attempt to secure drainage seems desirable in cases not too far advanced. In my case I feel sure that systemic infection had existed so long that surgical treatment could not avail. Indeed, it is quite possible that when infection is not limited to the folds of the broad ligament, but has invaded the connective tissue of the lateral wall and of the floor of the pelvis, surgical treatment is useless. In a case less advanced a free incision through the vaginal mucous membrane at the base of the broad ligament, and separation of the folds of the ligament either with the finger or a branched dilator, followed by the insertion of a gauze drain, would accomplish all that could be obtained by surgical treatment. The assistant's hand passed through the abdominal incision, when the latter is made to make the diagnosis certain, would readily guide the blunt dissection of the folds of the broad ligament, after which he should close the abdominal wound to avoid its infection. Free stimulation and vigorous supporting treatment following the above surgi-

cal measure would perhaps save cases that had not previously received a fatal dose of poison. Cases similar to the one here reported are likely to be due to a streptococcus infection, and, if serum therapy can avail in the treatment of puerperal sepsis, an antistreptococcus should be employed in similar cases as an adjunct to the treatment I have suggested. Puerperal cellulitis is comparatively rare, and the case I have reported is offered as a contribution to that subject, interesting alike to both obstetricians and gynecologists.

500 NORTH TWENTIETH STREET.

INFECTION OF THE PUERPERA.¹

BY

AARON B. MILLER, M.D.,
Syracuse, N. Y.

WHY this Society should again have inflicted upon it a paper the subject of which I am to treat can only be answered by the fact that if more were known concerning it less would be written. In referring to Barker on "Puerperal Diseases," I find under "Puerperal Fever" the following: "Referring to the cause of puerperal fever, more than twenty thousand pages have been published within the last twenty years, much more than upon any other one disease. Through the progress of medical science the cause of the infection is now known. The condition known to us a few years ago as puerperal fever, puerperal septicemia, etc., we recognize as due to infection, for the most part entering the system through the birth canal. Having a known etiology, the term puerperal fever has been robbed of its greater significance, and should only be applied to the puerperium when fever is present the true nature of which is being ascertained."

Owing to the labors of Semmelweiss, infection of the birth canal was suspected to be the cause of the systemic disturbance—a suspicion which was confirmed later by bacteriological experimentation and pathological examination of the secretions and tissues. The labors of the bacteriologist have proved that true puerperal infection is due to microscopic pyogenic organisms. I say true infection, in contradistinction to the many

¹ Read before the Medical Society of the State of New York, January 26th, 1897.

conditions producing allied symptoms, such as suppuration resulting from traumatism of a pelvic tumor or structure, or a tumor of the abdomen in continuity or contiguity with the parturient uterus, the ovaries or tubes. It is granted also that it is possible for women in childbed to have the various septic fevers—typhoid, malarial, eruptive, rheumatic, etc.—which I would classify as conditions complicating the puerperium but in no way dependent upon it.

The true puerperal fever induced by infection of the birth canal is due for the most part to the presence of the streptococcus. Other micro-organisms, however, may be the cause of the infection, as the staphylococcus, bacillus coli communis, and gonococcus, each existing alone, or collectively, causing a mixed infection. The birth canal is normally free from pyogenic organisms, and the nature of the vaginal secretion is such, according to Kronig, that they cannot long exist in the healthy secretions. Clinically the genital canal, he holds, may be considered aseptic in healthy women when from forty-eight to seventy-two hours have elapsed since the last examination. Moreover, he declares that the secretion, whether healthy or not, is always sufficiently acid to prevent the growth of streptococci. He found no case of alkaline or even neutral secretion in three hundred examinations, and, with the exception of the gonococcus, no pathogenic organisms in women who had not been examined internally. He recognized several forms of vaginal cocci and bacilli, but all of them non-virulent. Several bacteriologists bear him out in this opinion, while others deny the statement. If we accept the statement of Kronig that the secretions of the vagina are germicidal in their action, the germs of infection can live and multiply only when brought into contact with abraded or diseased surfaces, so that the traumatism of labor is an important factor in propagating infection. Impaired vitality of the tissues is necessary for the maintenance of the germs of infection. Injury of the birth canal may result at any portion—the vulva, perineum, the vaginal walls, or the uterus. The most frequent point, doubtless in consequence of the character of the tissues, is the vaginal portion of the cervix. Few lacerations of the latter are appreciated proportionately to the frequency of their occurrence, as repair usually takes place during the period of convalescence.

The uterus is a glandular organ, and on account of its position its secretions naturally drain into the cul-de-sac of the vagina, constantly bathing the cervical portion, so that the

infecting germs, having been introduced into the birth canal, find all the requisites for their development, warmth, and moisture, with food albuminous in character and a most desirable pabulum for increasing the virulence, especially of the streptococci, aided by traumatism during labor. Infection introduced into the vagina would not readily find entrance into the lymphatic system, but, being brought in contact with the uterus either at the cervix or within the body, finds an abundant lymphatic system; or, if the infection is carried to the placental site, it may be introduced directly into the veins, where absorption quickly occurs.

Knowing that the gravity of the disease depends largely upon the form of micro-organism introduced, and that the normal puerperium is free from constitutional symptoms, such as chills, fever, sweats, and arrested lochia, we should, immediately upon recognizing the symptoms indicative of pathological conditions, suspect infection, and a thorough local examination should be made for evidence of their presence, the strictest surgical asepsis being observed. The macroscopical appearance often shows an increased redness of the parts, with possible diphtheroid patches covering the abrasions. This alone is suggestive of infection, which must be proven by culture and the microscope. If inspection fails to reveal the presence of the localized conditions, this should not lessen the necessity of a bacteriological examination of the secretions. knowing that the presence of streptococci in the birth canal is most dangerous, virulent, and that death may result within a few days unless their development can be arrested. If one of the other forms of infection is recognized, or a mixed infection of the less virulent germs, the chances of arresting the disease are much increased. Recognizing, then, that puerperal fever is infection of the puerpera by micro-organisms whose normal habitat is outside the birth canal, that there are various forms of infection, some most severe and others mild, it is our duty to use every means possible to guard against their introduction into the birth canal at the time of parturition. At present as much doubt exists as to the proper method of treatment as existed in Barker's time as to the etiology. One author, recognizing that infection is carried most often by the attendant upon labor, advises that only external manipulations be resorted to and that digital examination be not practised for fear of carrying infection into the vagina. This cannot appeal to our judgment as rational treatment. While the fetus is expelled as a physio-

logical act, the number of complications is so great that many more women would die from non-assistance than now do from infection. We cannot expect that this will become a recognized practice. In maternities with skilled attendants external manipulations may reveal more than digital touch alone, but, as the greater percentage of labors are conducted by the general practitioner, it cannot be expected that, with his limited experience, he will reach this degree of perfection in diagnosis by external palpation. For fear that infection might be introduced into the birth canal previous to the commencement of labor, as may frequently occur, especially in the case of the gonococcus of Neisser, the vaginal douche would appeal to reason as the proper method to be employed ante partum; but on scientific principles this is wrong, and clinical observation does not warrant its use, as observed by Goldberg. The vaginal secretions normally are acid. During infection the acidity is increased, due to a germ, known as Döderlein's, which has its normal habitat in the vagina and gives rise to the germicidal action of the secretion—an action which is claimed by pathologists to be greater than that of any known antiseptic that can be used without danger to the patient. The employment of antiseptic douches naturally followed the recognition of sepsis and the introduction by Lister of antiseptics, and greatly reduced the mortality, probably not so much from the action of the antiseptic in true puerperal fever as in some of the allied conditions, such as puerperal sapremia the result of putrefactive changes in retained secundines. In such a condition washing away the diseased products by means of the douche must have been beneficial, but could not reach the seat of germ action, as the débris merely form fortifications to protect them while they are working on the healthy tissues beneath. The method of curettement where infection has occurred post partum has apparently been attended by good results where retained products of conception have been the cause of the infection, or, more properly speaking, where intoxication has followed retention of the products of conception, giving rise to symptoms of puerperal fever, and where the diagnosis has been based upon symptoms instead of upon actual conditions—conditions that can only be known through the culture media and the microscope.

The treatment resolves itself into surgical cleanliness, adopting all measures that will avoid the introduction of septic germs into the birth canal—the same methods that would be practised to avoid carrying infection into the peritoneal cavity in celi-

otomy. It is impossible to adopt prophylactic treatment that will always prevent the entrance of infection, but when the latter has once become established it is often a long and hard fight to a finish between the resistance of the tissues locally on the one hand and the germs of infection on the other. Our treatment should be directed against the cause rather than the symptoms. To arrest the cause the germs of infection must be killed or starved by lessening their field of action. Accepting the statement of bacteriologists, this cannot be done by any germicide at present known, as effectually as by the normal secretions. Antiseptic douches fail to reach the germs of infection, destroy the germicidal secretions, and so lessen the resistance of the tissues to further invasion. In general surgery infection is arrested by means of dry dressings, depriving the field of invasion of a necessary factor to germ production. That the birth canal can be made sufficiently sterile, by means of dry dressings, to enable Nature to repair the lacerated or infected surfaces, I have proved and described in a paper read two years ago before the American Gynecological Society, relating a case where the lacerated surfaces were extensive, the symptoms severe, and where the presence of the most virulent micrococci was demonstrated by cultures and the microscope. As one swallow does not make a summer, one case will not be convincing evidence. Other cases of less virulence have responded to the same treatment.

Serum therapy may prove to have sufficient antagonizing power against the specific pathogenic germs to arrest their progress until Nature can repair the avenues which have been thrown open to infection by traumatism. Many cases have been reported. In considering the literature the deaths and recoveries are found to have been about equal. The conditions under which it was administered are not sufficiently described to determine its benefits, and the antipyrogenic serum has been too recently introduced to enable us to arrive at accurate conclusions as to its future usefulness. As all surgical technique is founded upon the broad principles of bacteriology, so in the treatment of this affection we can obtain good results only through proper application of our surgical methods. When we know just when patients will recover if left to Nature, and when they will die from interference, we shall no longer have to say: "We have left undone those things which we ought to have done, and have done those things which we ought not to have done."

PREGNANCY AFTER DOUBLE OVARIOTOMY.

BY

CHARLES L. ILL, M.D.,

Surgeon to the German Hospital; Chief of Clinic of the Woman's Hospital; Assistant
Gynecologist to St. Barnabas' Hospital,
Newark, N. J.

MRS. C., 28 years of age, single, a domestic, came to me two years ago with the following history: She came from a healthy family; her general health had always been good; she had never been pregnant. Menstruation began at the age of 16; since then it had been regular, quantity normal, and without pain. For three months she had been complaining of a bearing-down pain in the abdomen, extending to both knees, and had noticed that her abdomen was growing larger. A physical examination disclosed that the uterus was in a normal position and somewhat enlarged. To the right of the uterus a tumor as large as a cocoanut, slightly movable without moving the uterus, but freely movable with that organ, was found. The tumor was not sensitive to touch. To the left of the uterus was a tumor of the same size as that on the right side, but with a long pedicle. My diagnosis was cysts of both ovaries, and I advised the removal of both tumors. I performed the operation at the German Hospital in December, 1894. The left tumor, having a long pedicle, was removed with ease. As the right tumor had a very short pedicle, I was compelled to leave some of the ovarian tissue in the stump. The patient made a speedy recovery and left the hospital three weeks after the operation. She came to me with her affianced husband and asked me to explain her condition to him, which I did. Five months later she came to me with the following history: After the operation she menstruated twice regularly. She was then married and had ceased menstruating since that time. She complained of nausea and vomiting in the morning, etc. On examination I found the vagina blue, the cervix soft, and the uterus enlarged; and both stumps were easily felt. Upon examination of the breasts I found that the nipples were sensitive, the areola deeply pigmented. With such signs and symptoms it would have been easy to make a diagnosis of pregnancy had I not removed two ovarian tumors five months before.

The case was very interesting, but puzzled me somewhat, so I decided to ask my brother, Dr. Edward J. Ill, for his opinion. After examination he said there was no doubt that the woman was pregnant. She came to me regularly for examination every four weeks for five successive months, and then suddenly disappeared. I heard nothing of her until last December. She then came to St. Michael's clinic with her baby and told me that a midwife had delivered her. She was in labor for three days. She came to the clinic to be examined, as she thought that another tumor was growing. Upon examination the uterus was found to be of normal dimensions and in the natural position. To the right was an ovary of almost normal size. The stump of the pedicle of the left side could be felt distinctly. Menstruation has not yet returned, as she is nursing the child.

I report the case as illustrating the advantage of leaving ovarian tissue in the abdomen, if possible. What was in this case an accident can be done purposely with good results. A woman with a small amount of ovarian tissue is better off than with none. It must be apparent that the Fallopian tube may slip from the constricting ligature and thus remain patulous.

132 SPRINGFIELD AVENUE.

PAPILLARY CANCER OF THE BODY OF THE UTERUS: ABSENCE OF CARDINAL SYMPTOMS.¹

BY

GEORGE ERETY SHOEMAKER, M.D.,
Gynecologist to the Methodist Hospital of Philadelphia.

(With one illustration.)

THE uterus shown in the accompanying illustration demonstrates well the extent of destructive infiltration by malignant disease of the body of that organ which may take place without presenting those symptoms which are frequently considered essential to a diagnosis of malignancy. In contrast with cancerous disease of the cervix, when the body is primarily affected the classical group of symptoms, pain, odor, watery discharge

¹ Read before the Section on Gynecology of the College of Physicians of Philadelphia, January 21st, 1897.

with flocculi, hemorrhage, and cachexia, either do not appear at all, or only in the final stages long after all chance for helpful surgery is gone. Particularly in malignant adenoma of the endometrium abnormal bleeding may be the only symptom, and expert examination may be negative unless assisted by the curette and the microscope. Fortunately these microscopical examinations are becoming more satisfactory, and in the future the diagnosis of the benign nature of adenomatous growths of the endometrium will less frequently give a false sense of security. That seems a bold statement, however, of W. J. Sinclair,¹ who says: "Any post-climacteric polypus or fungus of the endometrium of the body of the uterus is adenoma malignum."

Mrs. X., aged 63, was sent to me by Dr. J. R. Bryan. Three children, youngest aged 20. No menopause. She was large, active, well nourished, intelligent, the wife of a broker. She claimed to weigh more and to feel better than a year before. Not very anemic, slightly yellow, but for several years there had been attacks of liver disorder with occasional jaundice. There had been no pain and no odor. Bleeding was the only marked symptom, but this was decided. The menses had never stopped. About the age of 45 they became irregular, but always appeared several times a year for the eighteen years succeeding, amount gradually increasing, with occasional sharp hemorrhage. For the past six months almost daily discharge of blood. A little odorless, watery discharge at times. Urination normal. Through the speculum the vaginal cervix appeared normal, the os not enlarged or excavated, but the small visible portion of the cervical canal was dusky red. Diagnosis of malignant disease of the body was made by bimanual touch, which showed a symmetrically enlarged, retroverted, soft fundus, while the lower half of the uterus was extremely rigid, lacking the normal resiliency of muscular tissue when pressed between the fingers of the two hands. There were no nodules. The finger tip upon the os, which was small, felt a sharp edge all around the opening. A suspicious rigidity about this edge made the os feel as though punched out. This sharp edge may be felt where a polypus lies in the uterine canal, but it is then never rigid. A gentle attempt to test downward mobility with a tenaculum brought on bleeding which required a tampon for its control. Three days later vaginal hysterectomy by ligation was done at the Methodist Hospital. There were absolutely no adhesions to the uterus, but the tubes and ovaries by adhe-

¹ "System of Gynecology," Allbut and Playfair, 1896, p. 734.

sions high up, supposed from the history to be post-puerperal, interfered with the ready drawing-down of the uterus. The space between the bladder wall high up, and friable, infiltrated uterine tissue was very narrow, but the separation was completed without accident. No infiltration could be felt outside the uterine body. The recovery from operation has been uneventful.

After removal the uterus measured in length 20.5 centimetres.



Papillary cancer of uterine body.

Fundus, from side to side, 6 centimetres : from before back, 4.75 centimetres.

The photograph of the organ, split open in front after removal, shows the excavation, which had occurred inside the uterus down to the level of the external os. The os itself, however, is not shown in its natural condition, having been burned out with the cautery at the beginning of the operation, then packed with gauze and sewed up to protect the field from soiling. The irregular masses near the fundus were exceedingly soft, almost brain-like in consistence. The lower seg-

ment of the uterus was quite hard from infiltration. The peritoneum over the uterus was everywhere intact.

The following is the report of the pathologist, Dr. Henry W. Cattell : Macroscopically the tumor shows numerous elevations and depressions originating from the mucous membrane. There are points from which bleeding has occurred ; some of the elevations are merely attached by shreds and could have been readily removed by the curette. The question naturally arises how far these scrapings would have led to a correct diagnosis of the case. The majority of these are papillary in their character, and it is only at their point of attachment with the muscular tissue that an undoubted cancerous change is noted by the microscope. There has also been considerable irritation of an inflammatory nature, as is seen by large collections of round cells. The tumor has started as a benign papillary adenoma, perhaps springing from some placental remnants and being of slow growth until the later malignant changes noted above have started. The section studied was from tissue removed at A, including the entire thickness of the side of the uterine wall. It takes in the three fields of the benign adenomatous portion, the malignant portion, and the normal uterine wall.

3727 CHESTNUT STREET.

CLINICAL NOTES.¹

BY

BARTON COOKE HIRST, M.D.,
Philadelphia, Pa.

(With three illustrations.)

- I. THE OPERATIVE TREATMENT OF A PROLAPSED OVARY.
II. TWO CESAREAN SECTIONS. III. SEPTIC SALPINGITIS
OF CURIOUS ORIGIN. IV. INIENCEPHALUS.

I. PROLAPSUS ovarii, pure and simple, without disease, enlargement, or adhesions of the organ, is, in my experience, a rather rare and a very peculiar gynecological affection. All of our members, I dare say, have become familiar with the curious

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, February 18th, 1897.

behavior of such an ovary ; with the manner in which it suddenly drops into the bottom of an elongated Douglas' pouch, totally incapacitating the patient until it goes back spontaneously or is replaced : with its unaccountable retention in place for varying lengths of time, and its prolapse again in consequence of some slight jolt or jar, or without apparent cause at all. I had been at my wits' end in the treatment of some troublesome cases of the kind a few years ago, when I determined to try shortening the suspensory ligament of the ovary. I had an indistinct idea that something of the sort had been done by Kelly, but I could find no record of it. Accordingly I thought out a technique which should shorten the ovarian end of the suspensory ligament by making a loop in it, and carried it out by an operation in a typical case, with entire satisfaction and a complete symptomatic cure that has endured to the present time, more than two years after the operation. Shortly afterward there appeared a very helpful article on the subject in one of the German magazines, with a report of five cases, advocating the attachment of the suspensory ligament to the iliac fascia. Since then I have operated on two other cases by this method with the most gratifying result. As I have not heard of this operation being done by my friends and colleagues in the Society, I present the subject for discussion, in the hope of hearing criticisms upon it or of learning, perhaps, what experience others have had with it.

The technique of the operation may be briefly described as follows : A rather long incision is made through the abdominal walls ; the patient is put in the Trendelenburg posture ; a retractor on the side to be operated on displays the pelvic wall ; a fine silk thread on a needle is passed around the suspensory ligament about an inch or a little more away from the ovary, and is then passed through about a quarter of an inch of the iliac fascia above the ilio-pectineal line and well in front of the iliac vessels ; the two ends of the thread are now tied together, and the ovary rises into perfect position, coming into an exact line with its well-placed fellow on the opposite side.

II. *Cesarean Section*.—It is quite a remarkable coincidence to see two pregnant rachitic dwarfs, due within a few days of one another, and both operated upon in the same week. I have recently had this experience in the University and in the Howard Hospitals. The first woman (Fig. 1) gave the following measurements: height, 4 feet 8 inches; spinæ ilii, 22 centimetres; cristæ ilii, 22½ centimetres; external conjugate, 16 centimetres;

internal conjugate, diagonal, $8\frac{1}{4}$ centimetres; true conjugate, estimated, $6\frac{1}{4}$ centimetres. The child's measurements were: biparietal, 8 centimetres; fronto-occipital, $10\frac{3}{4}$ centimetres; fronto-occipital circumference, $31\frac{1}{2}$ centimetres. The woman made a good recovery, and the child lived and thrived on its mother's breast. The second case had the following measurements: height, 4 feet 1 inch; *spinæ ilii*, $22\frac{1}{2}$ centimetres; *cristæ ilii*, 22 centimetres; external conjugate, $15\frac{1}{2}$ centimetres; internal conjugate, diagonal, 8 centimetres; true conjugate, estimated, 6



FIG. 1—Case on which Cesarean section was done.

centimetres. There was two centimetres difference between the obliques as a result of a very marked rachitic scoliosis of the lumbar vertebræ. The first case, too, had an obliquely distorted pelvis on account of inequality of the two lower limbs. The second patient made a good recovery, and the child lived and thrived on artificial feeding. I was able in one of these operations to secure a photograph of a useful step in the technique, shown in Fig. 2—namely, the compression of the broad ligaments by an assistant, who at the same time approximates the abdominal walls and thus guards the peritoneal cavity

from the entrance of blood, etc. No other means need be taken to control the hemorrhage. The use of Müller's tube is not only unnecessary, but is actually disadvantageous.

III. *A Septic Salpingitis and an Ovarian Abscess of Curious Origin.*—Mrs. B., recently operated on in the Howard Hospital with success for pelvic inflammation on the left side, gave the following peculiar history: Two years before she had



FIG. 2.—Cesarean section. Showing an assistant compressing the blood vessels of the broad ligaments, and at the same time approximating the abdominal walls to prevent soiling the peritoneal cavity when the womb is opened.

been delivered, as her physician thought, of twins. After the birth of the second child the patient declared there was still another left behind within the womb. The physician laughed at the idea, and, after making an examination, assured the woman the womb was empty. She soon developed the symptoms of sepsis with a very foul discharge, and on the ninth day spontaneously discharged a third child, small, deformed, dead

and putrid. I cannot remember ever to have heard of a whole child left behind in this way, though we have all seen the placenta, and even a child's head, left in the womb for a considerable time. This case teaches obviously a useful lesson.

IV. The illustration (Fig. 3) shows a typical iniencephalus,



FIG. 3.—Iniencephalus

recently added to the unrivalled teratological collection in the Wistar Institute. Lewis has recently¹ published such a full account of this type of monstrosity that it is unnecessary to add more. He collected twenty-two cases in all. There is nothing of interest in the mother's history during pregnancy or in her labor.

¹ AMERICAN JOURNAL OF OBSTETRICS, January, 1897.

OCCIPITO-DEXTRO-POSTERIOR POSITION OF THE FETAL HEAD.

BY

ROBERT W. STEWART, M.D.,
Cincinnati.

It is universally acknowledged that the occipito-right-posterior position means generally a protracted labor and sometimes danger to both mother and child. It has, therefore, been much discussed, so that nearly every point in etiology, mechanism, and management has been worked at, if not worked out. In spite of this discussion and this work the subject is still capable of further consideration. The trouble has been that the disposition is to wait for Nature to complete the work, to interfere only when the exigencies of the case demanded it—a good rule on general principles, but one which still depends largely upon the old superstition: Beware of meddlesome midwifery. The secret of the successful management of the cases lies, as I believe, in early interference, in the attempt to change the position in the beginning, to remedy the bad position later if possible—in a word, to maintain flexion. What I have to say is the result of personal experience and of a rather careful study of the subject.

For the purpose of arriving at a working basis I have analyzed the last one hundred cases of labor which occurred in my private practice. Of these:

61 were O. L. A. =	61 per cent.
28 were O. D. P. =	28 “
4 were O. D. A. =	4 “
1 was O. L. P. =	1 “
2 were Breech =	2 “
1 was Footling =	1 “
3 were Cross =	3 “

The percentages agree so nearly with those of most authorities that it is altogether probable that a larger number of cases would make the agreement practically exact. Twenty-eight per cent of O. D. P. positions is somewhat higher than that usually given, and perhaps the objection may be raised that the diagnosis was not always correct. The objection may be valid.

¹ Read before the Cincinnati Obstetrical Society, November 18th, 1896.

but, I think, will lose some of its force when the method of making the diagnosis is stated. This method is as follows: Abdominal palpation shows the feet of the child to be in front, near the median line or to the left of it, and above the level of the umbilicus; the dorsum may (with difficulty) be mapped out posteriorly and to the mother's right; the bulk of the fetal head is to the right of the symphysis pubis, unless engagement and descent have occurred; fetal heart sounds usually hard to find, when found they are behind and to the right side of the mother and below the umbilical level. Digital examination before dilatation of the os uteri shows the uterus high in vagina; after dilatation, the anterior fontanelle in the pelvic axis, or slightly in front of it, and directed toward the left pectineal eminence; the occiput to the right and behind; the sagittal suture in the right oblique diameter of the cavity; usually an ear can be found with the posterior aspect presenting to the right sacro-iliac synchondrosis. With these signs made out, the diagnosis needs only the confirmation of the rotation of the dorsum to the right thigh of the mother after birth of the head. The existence of these signs coincidentally or in succession can leave but little doubt in the mind of any one.

With the head well flexed and presenting at the pelvic brim in the right oblique diameter—in other words, with the suboccipito-bregmatic and biparietal diameters (each three and three-quarter inches) lying in the two oblique diameters of the mother's pelvis (each five inches)—there should be no difficulty in the head's passing quickly down to the pelvic floor and there rotating, for the space is ample. This occurs in a considerable number of cases, and the labor should not be unusually prolonged. Certain contingencies may, however, arise and change what promises to be an easy delivery into a very difficult one. They are, in part, when dorsum of child is from the beginning, or rotates afterward, to the back of the mother, thus producing posterior rotation of the occiput; when the pelvic floor is relaxed and thus either does not give proper resistance enough to make anterior rotation possible, or else permits the flexed head to sink so low in the pelvic cavity as to allow impaction between the tuberosities of the ischium—a condition of affairs which is conceivable in multiparous women who have relaxed or torn pelvic floors; when the child's head is relatively larger than the mother's pelvis; and, finally, when extension of the head occurs, a complication which lies at the bottom of most of

the difficulties occurring in the occipito-dextro positions, as well as those which are found in occipito-anterior positions.

It is possible, at least, that the dorsum of the child may originally be turned to the back of the mother and yet the head enter flexed at the pelvic brim and in the right oblique diameter. Such a condition would of necessity mean posterior rotation of the occiput, for obvious reasons. Olshausen's¹ and Dubois's² experiments show that rotation (anterior) of the occiput depends upon the resistance of the pelvic floor, and that when this is relaxed rotation does not take place, but the head is driven straight down through the pelvis and out through the vulvar orifice without change, except that which comes from following the curved course of the pelvic canal. Given, then, the condition of relaxation of the pelvic floor, delivery may occur, if the head be not too large, without anterior rotation. But the case becomes a very different one when disproportion between head and pelvis exists. Then locking of the head may be expected, especially if flexion be not sharply maintained, because of two factors—the gradual inward inclination of the ischial bones, and the substitution of the occipito-frontal or, worse still, the occipito-mental diameter of the child's head for the suboccipito-bregmatic. The middle planes or triangular planes of the pelvis are formed by the ischial bones, and are separated above by the transverse diameter of the inlet, five and one-quarter inches, and below by the same diameter of the outlet, four inches. A large head may pass down through this space, if well flexed, without anterior rotation, providing there be great moulding; but even a moderate-sized head, if extended, cannot pass through, for the reason that four and one-half inches cannot pass through four inches. Under such circumstances anterior or posterior rotation must take place or impaction will result. Extension of the head is therefore the cause of the greatest difficulty in these positions, as it is in all other positions of the vertex. It is extension which causes the long delay in these labors. As the head enters the brim with its occiput to the right and behind, the biparietal diameters are in relation with the short line joining the promontory and the right pectineal eminence, while the bitemporal diameter swings clear in the left half of the inlet in relation to the longer line joining the left sacro-iliac synchondrosis and the symphysis pubis.³ If the pelvis be relatively small the head is apt to be caught, even when well flexed, at the brim, the two parietal eminences at the ends of the short line above referred to acting

as pivots upon which the head swings and thus permits the freely movable sinciput to drop downward—*i.e.*, to extend the head. Should the head pass through the inlet, however, in a flexed condition, the wider space of the cavity might allow the occiput to slip into the oblique diameter of the cavity, thus release the forehead and allow it to descend, and so bring about extension. Indeed, extension may occur from many combinations. Suffice it to say that extension is very common, and when once begun may go to almost any extent, each step in that direction tending to make the delivery more difficult.

When the child's head is high up, has not engaged in the pelvic brim, and the os is still undilated; if, at the same time, the dorsum of the child lies in the right and toward the mother's back; if the labor has really begun, the object to be attained is engagement of the head in the flexed condition. This will be best brought about by bringing the dorsum forward, as can oftentimes be done, by abdominal manipulation. Success in this manipulation, thus changing the position into a right occipito-anterior, justifies me in recommending the effort. If the bag of waters be still intact and the head be still movable there is no more difficulty, nor is there more danger, than there would be in the attempt to change the presentation from a cross to a head or breech, and certainly no one would hesitate to attempt that manœuvre. If this be successful the dorsum is changed from the right sacro-iliac synchondrosis to the right pectineal eminence, a quarter-circle, or 90° , which is entirely consistent with the permissible twisting of the spinal column, and which would of necessity convert the position into the safe R. O. A. if the head be not already engaged in O. D. P. This bringing of the dorsum to the front and right must be followed by keeping up the advantage gained in case the head be already engaged in O. D. P., and if so maintained becomes a powerful factor in producing anterior rotation when the head reaches the cavity. It is all that can be done until the os be dilated. As the os dilates and the head descends the diagnosis can² be confirmed and the presence of flexion or extension can be determined. With the dorsum to the front and good flexion present, there is no need of doing anything; if the dorsum be behind, yet the head be well flexed, the same is true, except that there is greater need for watchfulness to make sure that the occiput does not rotate posteriorly. To prevent such a disaster the woman should be placed upon the right side and the whole hand, if necessary, introduced into the vagina and the

head brought into the proper position. The direction which the anterior fontanelle takes will determine the necessity for interference. When the anterior fontanelle can be easily reached, and the sagittal suture traced toward the right sacro-iliac junction in a line parallel to the plane of the outlet, extension has begun. By carefully passing one or two fingers in front of the fontanelle—that is, behind the symphysis or a little to the left of it—very moderate pressure upward will often suffice to flex the head. If at the same time the pressure be made backward as well as upward, anterior rotation will be helped. Should this effort at flexion fail, the whole hand (left) may be introduced and an effort made to reach the occiput. This will, at times, enable one to get a finger on either side of the occiput, if not directly over it, and thus bring it downward and possibly forward.

I have been able by these manipulations to bring about flexion and anterior rotation in the last three cases of O. D. P. position which occurred in my practice, and have thus satisfied myself that the labor has been materially shortened and the patients' sufferings greatly diminished. So great is my confidence in this method that, I think, only two classes of cases can occur in which serious difficulty can arise—namely, posterior rotation of the occiput, and large heads jammed down into the pelvis.

Posterior rotation of the occiput must be managed according to the established rules of obstetrical practice. This treatment, when once it has occurred, is fully set forth in all text books. For those cases in which a large head is jammed down into a comparatively small pelvis, especially if the head be in extension, the difficulties may be remedial or not, according to circumstances. If the case has been under observation from the beginning of labor, and the passage of the head through the pelvis was possible under any circumstances, the locking could probably have been prevented by following out the method of procedure already suggested—the maintenance of flexion by pushing up the forehead or pulling down the occiput by manipulation. The advocacy of early interference on the part of the physician is advanced to prevent this complication. If the case be seen too late to prevent this complication, and there be no progress in the way of flexion, the rule, as laid down by most authorities, is to apply the forceps. If the forceps be applied to the sides of the pelvis and thus slipped around the child's head, catching it over face and occiput, as

it must do, dragging downward can only make the difficulty still greater, for the reason that extension must be increased. It may, however, be possible, by grasping the head firmly and lifting the handles of the instrument toward the left of mother, to so depress the occiput as to produce flexion and thus materially assist the progress of the case. This is doing what manipulation seeks to do, and should be employed only when the latter fails, because of the danger to the child from compression and to the mother from laceration of the vaginal and pelvic tissues. Forceps applied in the reversed position are so apt to project beyond the head and tear the soft parts of the mother that their use in this way is certainly limited. That limitation is the failure of all other methods. When it is possible to assure one's self that the blades do not project beyond the head, it is possible to get the fingers about that head with sufficient freedom to make manual manipulation tolerably easy of performance. Forceps applied to the sides of the head, and not in the reversed position, should have rather straight narrow blades and should be placed well back upon the head, so that when traction is made the occiput may be brought down in the effort to restore flexion. I use the axis-traction forceps in these cases, keeping the handles to the front as far as possible and as far apart as is consistent with a perfect hold upon the head. This is to prevent pressure upon the child's neck. If anterior rotation occur now it should be allowed to proceed unrestricted by the instrument.

The theory of this application of the forceps is as follows: Inasmuch as the head lies in the right oblique diameter of the pelvic cavity, the forceps can be easily applied to the sides of the head, because of the comparatively great distance of the left oblique diameter of the cavity, one blade lying in front of the left sacro-sciatic notch and the other in the right anterior inclined plane. When the instrument is in position, if the shanks be carried forward and toward the left, the occiput will be dragged downward whether the blades be over the whole sides or only over the posterior aspects of the sides of the head. This carrying forward and to the left of the shanks permits of a greater or less separation of the shanks from traction rods, thus converting the forceps into a lever of that class in which the power is between the weight and the fulcrum. The shanks held in the one hand of the operator are the fulcrum, the child's head within the grasp of the blades is the weight, and the other hand of the operator, acting through the traction rods, is the

power. Traction upon the rods now means, of necessity, pulling the head in the direction of its long axis, or toward the pelvic floor and the posterior inclined plane—that is, the increase of flexion, or its restoration if already lost. The power may be applied in the direction of the long axis of the head at an acute or at a right angle to that axis, according to the amount of separation which is possible between shanks and traction rods. If the ordinary forceps were applied to the sides of the head in O. D. P. positions, traction can only be made in the axis of the pelvis and the impaction thus increased. The axis-traction forceps applied in the manner described avoids this danger.

In carrying the shanks forward or the rods backward it is necessary to exercise great care that the soft parts of the mother are not wounded. As descent proceeds the shanks and rods can be separated more and more and thus the flexion be progressively increased.

Following the descent of the head anterior rotation will occur, so that the forceps, if allowed to remain long enough, will sweep through a quarter-circle and thus come to lie, one blade in the left anterior and the other in the right posterior inclined plane, with the ends of the blades lying toward the posterior aspect of the pelvis. The instrument should, however, be removed before it reaches this position, and, if necessary, reapplied as in the ordinary occipito-anterior positions. Extraction should not then be difficult, except in extraordinary cases.

While all of this is true and has been demonstrated, at least to my own satisfaction, it should only be resorted to when manipulation fails, for the reason that hard, unresisting metal is always more liable to tear the tissues than the compressible hand. Consequently, as stated above, whenever the diagnosis of posterior position is assured and the head is large, a persistent effort should be made to maintain flexion by keeping the sinciput pushed upward. If necessary the whole hand may be introduced through the vulvar orifice—of course under anesthesia—the occiput grasped and dragged downward, the child's dorsum being kept toward the anterior abdominal aspect of the mother by the other hand of the accoucheur. Certain objections will be urged by the more conservative practitioners, and they are of such force that they should be met before this subject is completed. These objections are: the danger of sepsis from too much internal manipulation, the greatest danger

arising from a possible introduction of the non-pathogenic germs from the acid medium of the vagina into the alkaline medium of the cervix, and their consequent change into virulent forms; the unnecessary manipulation, since so many of those cases end spontaneously; the inefficiency of the hand in producing any change in position of the head when there is impaction.

In these days of asepsis, when cleanliness of the hand and arm can be almost absolutely assured, the fear of the introduction of septic material can be completely done away with, and the danger of carrying non-pathogenic germs into different media and consequent production of virulence ought to be reduced to practical nothingness. Perfect surgical cleanliness is certainly as possible for the obstetrician as for the gynecologist or general surgeon, and should give as much assurance to the one as it does to the other. The non-pathogenic germs can be removed from the vagina by irrigations and scrubbing with solutions of creolin and other antiseptics. This objection is rendered still weaker by the fact that all of the manipulations proposed are used when positive necessity for interference arises, or when there is danger or actual presence of abnormal presentations.

The second objection is met by the fact that while many of these cases end spontaneously, the greater number of them do not so end until great risk of exhaustion of mother and physician and possible death of the child has been incurred. It is certainly worth a great deal to shorten the labor and thus gain all of the consequent advantages to all parties concerned. As for the inefficiency of the hand in producing results, I can bear distinct testimony to the contrary view.

REFERENCES AND BIBLIOGRAPHY.

1. OLSHAUSEN: *Archiv f. Gyn.*, Bd. xxxii., 492.
2. DUBOIS: Quoted by Cazeaux and Tarnier, Munich.
3. REYNOLDS: *American Text Book of Obstetrics*, 1895, p. 443.
4. LUSK's Text Book.
5. *American System of Obstetrics*.
6. HODGE.
7. AHLFELD.
8. MEYER: *Dorpat. Archiv f. Gyn.*, Bd. xl., pp. 94 et seq.
9. HERMAN: *Difficult Labor*.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of January 21st, 1897.

E. E. MONTGOMERY, M.D., *in the Chair.*

DR. CHARLES P. NOBLE read a paper entitled

A NEW METHOD OF SUTURING THE ABDOMINAL WOUND IN CELIOTOMY.¹

DR. RICHARD C. NORRIS.—Although I came in late and did not hear the whole paper, I think I have grasped the idea that Dr. Noble has advanced, and I have thought for a year and a half that I have been doing this very thing. I believe a continued suture will overlap the fascia better than interrupted sutures. It has been my practice to use a continuous catgut suture for this purpose. Starting at the lower angle of the incision and grasping the distant edge of the fascia with tissue forceps, the needle is passed near that edge. The near edge of the fascia is forcibly lifted from the muscle, and the needle pierces the under surface of the fascia a quarter of an inch from its edge. By means of this stitch the near edge overlaps the distant edge. As I look at this picture Dr. Noble has brought, it seems to me that with four or five interrupted sutures we should not obtain as close apposition of one piece upon the other as a running stitch of catgut would give you. I have been using this method for nearly two years and have found it entirely satisfactory. I was induced to use catgut for the fascia by seeing Dr. Baldy's work, and it appealed to me as a rational plan to secure union of the fascia. Besides the running stitch, interrupted through-and-through sutures of silkworm gut, which I continue to use, seem to give a support to the wound that is certainly desirable. When it is especially desirable to have accurate union of the skin, it is best to use the subcuticular stitch of fine silk just before tying the interrupted sutures of silkworm gut, because the overlapping of the fascia will not allow the interrupted sutures to accurately unite the skin edges of the incision.

DR. G. E. SHOEMAKER.—It seems to me the evolution of the method of the closure of abdominal wounds is in the direction of suture in layers. I think operators are generally coming to that conclusion. But it has been my experience, in cutting through a few cases where very excellent apposition had

¹ See original article, p. 507.

been made of the fascia, that the connective tissue which had developed in the process of forming the cicatrix was so arranged as to include a part of the overlying and underlying tissue as well as the aponeurosis, and I think that it would be impossible to dissect out an aponeurosis, some time after healing, which had adopted the diagrammatic condition which Dr. Noble has given us. I think that after thorough healing of the wound these tissues are altered and that we have a very firm cicatrix, no matter whether we make the aponeurosis overlap in the way he speaks of or by bringing the under surfaces together by a mattress suture.

DR. C. P. NOBLE.—The only point I wish to emphasize is the way the fascia is isolated. I take the scissors and separate the under surface of the fascia for a quarter or half an inch from the rectus muscle upon one side, and with a knife dissect the fat from the upper layer of the fascia upon the side that is to go underneath: so that the fibrous tissue of the aponeurosis is applied to fibrous tissue, instead of having more or less of the fatty layer interposed, as would be the case if this were not dissected off. If you do not especially prepare the aponeurosis upon the side which is to be underneath, you will not sew aponeurosis to aponeurosis, but will sew it to subcutaneous fat. Hence it is an important part of the preparation to separate the aponeurosis from the muscle upon the side which is to be uppermost, and then to dissect off the fat with a knife upon the side which is to be undermost. Whether we use interrupted or continuous sutures I think is a matter of taste. Personally I like the permanent suture, and it is best to introduce that as an interrupted suture. The object in writing the paper was to bring the matter up in a formal way, which has not been done heretofore, and to advocate the systematic overlapping of the aponeurosis so that fibrous tissue will be sewed to fibrous tissue, instead of the fascia, fat, or whatever happens to be uppermost in the wound being sewed hap-hazard.

DR. RICHARD C. NORRIS read a paper upon

THE NECESSITY FOR AN EARLY INSPECTION OF THE VAGINA
IN PUERPERAL SEPSIS.¹

DR. E. E. MONTGOMERY.—I should like to second what Dr. Norris has said in regard to the very careful investigation which should be made of the vaginal wall in cases of sepsis. No point should be overlooked by which the septic poison may have entered the system of the patient. It would certainly seem an unwise procedure to do an operation of the importance of curettement of the uterus when the latter organ has not been the point of entrance for the infection. I would question the ability of the operator, by the method which Dr. Norris suggests, to control infection and prevent its further entrance in a case in which it has occurred through laceration of the vagina. I refer to cauterizing the surface with chloride of

¹ See original article, p. 523.

zinc or nitrate of silver. In cases of streptococcus infection we find the poison introduced deeply into the tissues, and it seems to me the procedure would not be sufficient to bring about an arrest of the infection. In every such case the important method of treatment is to suspend the nutrition, keep up the strength of the patient, and promote as quickly as possible systemic immunity against further spread of the poison. In my own experience the use of the streptococcus antitoxin has proven a most efficient method to accomplish this, and I should now feel, if I saw a case of sepsis in which examination made it evident it was not one of putrid intoxication, that I was not doing my whole duty to the patient if hypodermatic injections of antitoxin were not used. I reported to the American Medical Association in Atlanta a case treated in this way, in which it might be questioned whether the result was due to the efficacy of the antitoxin, or whether the late period at which it was administered had enabled the patient to become of herself immune to further spread. At the time the agent was given, however, her temperature was between 103° and 104° . She had had an attack of erysipelatous disease which had extended from the vulva over the entire body, with the exception of from the elbow joints to the hands. There was a second blush of attack, apparently starting from the original site, extending over the buttocks and abdomen when the antitoxin was given. The temperature decreased nearly to normal following the first dose, and subsequently no elevation of temperature of any moment occurred; the patient was given four doses of antitoxin, one each day, and fully recovered without any local manifestation. I had an opportunity to test the antitoxin recently in a patient seen in consultation, in which the woman had suffered two weeks with elevation of temperature, rapid pulse, and in whom there was a boggy condition of the pelvis without any special localized lesion. Antitoxin was given, with a prompt subsidence of symptoms and recovery of the patient. Dr. J. M. Fisher, my chief of clinic at the Jefferson Hospital, recently saw a patient who had been confined in a room in which another woman had died from sepsis but a few weeks before. The last woman was delivered by the first patient's midwife. In this patient there was extensive diphtheritic exudation over the entire vagina. Antitoxin had been administered to the former patient when she was almost moribund, without effect. The second patient, with a diphtheritic exudate and high temperature, was given antitoxin, with immediate subsidence of temperature, desquamation of exudate, and subsequent recovery of the patient. These cases seem to me of sufficient importance to justify us in hoping to arrest a disease which otherwise is so pregnant with serious effects, even in those cases which recover, and is dangerous to life in the great majority of cases. The only difference I would make in the treatment pursued by Dr. Norris would be that I would first have given antitoxin, and subsequently, if local manifestations justify it, followed it by an operation, which I think could have been done through the vagina.

DR. C. P. NOBLE.—I think none of us are inclined to dogmatize on cases of the kind reported by Dr. Norris, because the more radical measures which are put into use have been before us such a little while that our experience is comparatively small. I agree entirely with what he said of the necessity for diagnosing the point of entrance of sepsis, and there is no doubt whatever that the vagina is the point of entrance in many cases, instead of the uterus. I should think, as has been stated by Dr. Montgomery, that the efficiency of local cauterization would depend upon the time when it was employed. Of course, if the case is seen at once after the onset of the trouble, when the germ invasion is probably very superficial and the febrile symptoms largely from absorption and not germ infection, I do not doubt that cauterization would prevent further invasion of the vagina and thus prove effectual. But after ulcers have been present some time and become deep, local applications will not be effectual. As to the method of treatment pursued in this case, I do not feel like criticising Dr. Norris' measures. I am sure that, having seen the case, he is very much better able to decide what was best to do than any of us who were not present. But in a patient of that kind, if the patient's condition did not prevent, if she had been septic for some time and there was good reason to believe that invasion of the broad ligament was well marked, it seems to me wise to do a hysterectomy and obtain better drainage. In this way the broad ligament would be opened up for drainage. By doing hysterectomy rapidly the patient would have a better chance to recover than if a suspicious uterus and an infected tubal stump were left in the woman. This does not apply to this particular patient, as Dr. Norris distinctly stated that the heart was in such shape that it was very desirable to inflict as little traumatism as possible. I think in such cases saline infusion would be beneficial if practised systematically. Saline infusion should be used before operation, to get the circulation in as good condition to stand shock as possible. Not only use it before, but be prepared to use it during or immediately after operation, so that the dangers of shock will be minimized, and also, upon theoretical grounds, to assist in the elimination of the toxins which have already been absorbed into the blood. There have been various cases recorded in which saline injections have been given for this purpose with apparently good results, and in a number of cases the same results have been accomplished, to my knowledge, although the cases have not been reported. I feel that the use of systematic saline injections, either under the skin or into the veins, is of the greatest importance in this class of cases. I have seen a number of cases of broad-ligament infiltration—cases not so sick as this reported to-night—which went through a course and ended in recovery without abscess. It is of interest to me to hear cases of broad-ligament abscess reported to the Society, because for a long time I had the burden of advocating the occurrence of such cases to carry alone. I reported some time ago to the Obstetrical Society a

case of this kind in which I operated some weeks after labor, supposing I was going to deal with broad-ligament abscess; there was a large mass at the side of the uterus. This patient was by no means so ill as the one reported; the large mass had kept her in bed for some weeks after her labor, but she had improved sufficiently to go to the dispensary and be admitted to the hospital before she came under my observation. On opening the abdomen the broad ligament was found thoroughly infiltrated, but there was no reason to believe pus present. The infiltration had extended into the omentum two or three square inches. All I did was to tie off the infiltrated omentum and sew up the abdominal wall. In that case, fearing that there would be a peritonitis from an infected broad ligament, I used a gauze drain. I closed up the abdomen in that case, feeling that if the broad-ligament infiltration broke down it could be opened through the vagina. The patient made a good recovery and there was no abscess. I remember another case very well, a doctor's wife. The placenta in that case was delivered manually by a gentleman who had attended several cases of puerperal sepsis. She promptly developed sepsis. In her case it seemed clear that infection was from inside of the uterus, as the doctor's hand was introduced without any washing whatever. I reported this case also to the Obstetrical Society. She was quite ill for a long time and there was a well-marked exudate—so marked that it could be felt both from above and from below—filling up the pelvis. That case was seen by Dr. Parish and Dr. Goodell in consultation, and under expectant and supporting treatment the entire mass resolved, and the patient, as I know from subsequent examinations, is entirely well. I doubt if there are more than a few light adhesions on that side. So in cases of less gravity than that reported by Dr. Norris it seems that expectancy if symptoms are not urgent, or vaginal incision if they are urgent, is the proper plan to pursue. I am very much interested in the reports of the use of antitoxin given by Dr. Montgomery.

DR. G. M. BOYD.—I had under my care some two or three years ago a case which impressed upon me the importance then of localizing, if possible, the seat of infection. It was a case of an Italian who had been delivered some weeks prior to my visit. When I examined the patient I found her profoundly septic. An examination revealed the left broad ligament very much thickened, and that side of the pelvis pretty much filled with a mass so large that it was very difficult to say whether the broad ligament alone was the seat of disease or whether the tube and ovary on that side were also infected. The patient was quite ill at the time I saw her, and it seemed wise to interfere surgically if possible. I remember at that time it seemed to me a very grave question to decide whether it was wise to open the abdomen or whether it was better to make an incision over Poupart's ligament with the hope of reaching an abscess. We followed the less grave course. An incision was made over Poupart's ligament. After

a deep dissection a pelvic abscess cavity was found. It was drained, and the patient made a rapid recovery. Since that time it has been my custom at the Lying-in Charity to examine all cases of possible infection carefully to find the seat of infection. I believe we should hesitate to open the abdominal cavity early in septic infection. I believe we should wait, if possible, for localizing of the trouble. If it is a localized infection either in the tube or broad ligament we can operate to advantage, but to operate early in a general septic condition I think that we will often complicate our case, and probably interfere with what might be possibly a recovery. The successful cases that have been reported in the past have been those that have been operated upon late—cases in which there has been very great localization of the trouble. I am very glad to have heard Dr. Norris' paper, and I do not think it can be impressed upon the profession too strongly the wisdom of examining the whole birth canal to find the seat of infection. In Dr. Norris' case the ovary was the seat of infection, and I would like to ask whether it was possible to exclude in that case an infection through the uterus; whether he satisfied himself that it was an infection through the broad ligament alone. Was it not a double infection through the uterus and the vagina?

DR. GEORGE ERETY SHOEMAKER.—The interesting and valuable point is the absolute demonstration of infection from a point below the uterus. As to the question of radical operation in these septic cases, it seems to me it is useless to do a radical operation, for instance a hysterectomy, when we fail to remove, along with the point where the disease originated, the principal mass of infected tissue as well; consequently a hysterectomy in the case of Dr. Norris' patient would have been unwise, because it would have left behind a large mass of thickened broad ligament and cellular tissue which was infected through lymph channels running up along the pelvic wall. In deciding the question of the removal of anything we must distinguish between those cases in which there is a wide, inaccessible area of cellulitis and those in which there is a purulent accumulation at some one point where we can remove that accumulation. I am sorry that Dr. Norris did not speak of a puerperal case in which he operated shortly after this one. He operated on a desperately ill woman, removed a tube and ovary which was infected, and saved her life; but the difference between that case and this was that the disease had localized itself in the tube and ovary, while the broad ligament was thin like a normal broad ligament and not infiltrated. There was no cellulitis and the lateral wall of the pelvis was not infected. As he removed that tube and ovary he removed the result of the infection entirely, and the patient immediately recovered. No hysterectomy in a case of the kind reported to-night could have done that, and mere drainage could be secured through an opening in the vagina at the base of the broad ligament.

DR. C. P. NOBLE.—In a hysterectomy, while it is true you would not go to the pelvic wall and remove the entire broad ligament, by placing a ligature well out to the pelvic wall a

considerable part of the broad ligament can be removed; and what is not removed can be freely drained, as the entire broad ligament between the round ligament and the uterine artery is left open and is not constricted by ligatures. By merely removing the pyosalpinx a suspicious uterus is left behind, and, what is more important, the infected stump of the tube is left open.

DR. RICHARD C. NORRIS.—In reply to Dr. Noble's statement, I did remove the tube and ovary. The uterus, so far as I could tell at the time, and the right broad ligament and tube and ovary were perfectly normal. My greatest fear was that the necessary removal of the tube and ovary would cause infection of the peritoneal cavity. I think if a hysterectomy had been done no better opportunity for drainage would have been secured than could be obtained by vaginal puncture at the base of the broad ligament, since by that means the peritoneal cavity could be protected. Furthermore, had a hysterectomy been done the ligatures placed on the arteries would have prevented drainage from the parts behind the ligatures. In the case reported the infection had spread to the floor of the pelvis, through the false pelvis, and upward to the kidney. This widespread infection demonstrated to my mind that surgery could not help such a case. So far as surgery in such cases is concerned, I believe the result will depend upon the kind of infection. I am sorry the drop of serum I got out of the broad ligament was lost. I am quite sure it was a streptococcus infection. Streptococcus infection so widespread cannot be reached by cauterization, nor by drainage, nor by hysterectomy. Destroying the atrium of the poison will not save the patient. The wide range of temperature indicates a lymphatic and phlebotic form of infection. In my experience, if anything will save these cases, it is free stimulation. As to the use of antitoxin, I am very much gratified to hear of the good results obtained by Dr. Montgomery following its use. It stimulates me to make use of it. I have read the foreign and home journals, and finally summed up the matter in my own mind that the benefit from antistreptococcic serum is not proven at the present time. Some men have reported cases in which they believed antitoxin had directly caused the patients' death, other men have had varying success, and, with our inability to know whether we have a mixed infection or a pure streptococcus infection, we are in the dark and must use antitoxin in a very empirical way. However, we must use such methods just as our forefathers did, and doubtless time will tell the true value of antitoxin in puerperal cases. It is the duty of every man to use the antitoxin. It is also his duty to use it early. This fact is demonstrated by the modern treatment of diphtheria. The next time I meet a case of infection which from its clinical characters indicates a streptococcus infection I shall use an antistreptococcic serum, but will feel that I use it in a more or less experimental way. If this woman had been infected by staphylococci she would not have been so profoundly ill. The infection very likely would have

localized itself in the broad ligament, and we would have had to deal with a broad-ligament abscess which could have been opened extraperitoneally. Where, however, the infection is not localized and the violence of the constitutional symptoms indicates more than staphylococcus infection, if surgery is called for the only indication is to make an attempt at drainage. After removing the tube it would be an effort in the line of drainage to open the broad ligament through the vagina. It seems much safer, promises just as much for drainage as could be obtained by hysterectomy, and if, with stimulation and, if you choose, an antitoxin, you can tide the patient through, you save for her the tube and ovary on the other side. I also believe with Dr. Noble that the use of normal salt solution is of value in the treatment of septicemia. How it acts we do not know. It is claimed by some men that it promotes leucocytosis and thus aids the body cells in their struggle against micro-organisms. Experimentally it has been proved that this artificial serum causes a lavage of the blood and helps the excretory organs to eliminate poisonous products. Clinically I have used it in almost every case I have seen in consultation during the last few months. Other plans of treatment, of course, have been used at the same time, and therefore an element of doubt surrounded its value. So far as I could learn, in the case reported, both at the time of examination and at the post-mortem, the uterus was not infected. There was no sign of redness or infiltration, and from macroscopic examination I can say that the tube and ovary were infected by way of the lymphatics, the infection spreading through the broad ligament. It was not a pus tube or pus ovary; it was simply a thick right broad ligament with veins distended, the tube as large as my finger, the ovary itself much enlarged and inflamed without containing any pus. In other words, I believe this case was one of late streptococcus infection, and from the very moment the poison entered the lymphatics it rapidly multiplied, and from that time the patient was doomed and nothing could have saved her, except, perhaps, the early administration of antistreptococcus serum. Dr. Boyd has said that nothing should be done in these cases until a thorough examination is made. I agree with that heartily. I should never proceed hastily in these cases. In this patient I did find a large tube and ovary, and if these had not been present I should probably have opened through the vagina. In opening through the vagina, in cases of this kind, I think we must avoid opening the peritoneal cavity, otherwise infection of that cavity is almost certain to follow. The case of mine to which Dr. Shoemaker referred belongs to a different class. Surgery is always indicated and is life-saving in such patients.

DR. GEORGE E. SHOEMAKER presented a recent specimen of a

PAPILLARY CANCER OF THE BODY OF THE UTERUS; ABSENCE OF CARDINAL SYMPTOMS.¹

¹ See original article, p. 533.

Meeting of February 18th, 1897.

B. C. HIRST, M.D., *in the Chair.*

DR. B. C. HIRST read a paper on

OPERATIVE TREATMENT OF PROLAPSE OF THE OVARY,
and also presented clinical notes on

TWO CESAREAN SECTIONS.¹

DR. C. B. PENROSE.—I have been much interested in Dr. Hirst's paper on "Ovarian Prolapse." I have often thought that some operation for retaining a prolapsed ovary in position might be of service, but I have found that the cases of simple, primary, and uncomplicated ovarian prolapse are very rare. The condition is usually the result of some ovarian disease, such as cystic degeneration, which precedes the ovarian displacement, or the ovarian prolapse follows and is caused by retrodisplacement and prolapse of the uterus. In the second class of cases, those following uterine displacements, the ovarian prolapse is usually cured by ventrosuspension of the uterus. In the first class of cases, those in which the ovarian displacement is the result of cystic disease, I have very often punctured a number of follicular cysts in the ovary in order to diminish its size and weight. I have not yet been able to determine how useful this method of treatment by puncture is, and I would like to ask the members of this Section the result of their experience.

DR. H. A. SLOCUM.—Inasmuch as I think prolapsed ovary is not very rare, I should like to ask Dr. Hirst if he took particular care to ascertain the anatomical conditions which allowed the ovary to prolapse.

DR. RICHARD C. NORRIS.—In reply to Dr. Penrose's question, I have had three cases during the past six months that I have treated in the manner he describes. In one case there were small cysts on the surface of the ovary that were punctured, and in another case I drained a hydrosalpinx and did not remove the organs, which otherwise seemed to be in a fairly normal condition. The convalescence of the patients was without complication, and these cases especially I have kept under observation and have had reports from them after each menstrual period; they have been greatly relieved of their pain. Such work is in the line of conservative work which has been done in a large number of cases by other men, who report excellent results.

I recall also a patient who was sent to me with a supposed retroverted uterus. The disease proved to be a prolapsed cystic ovary in the cul-de-sac. The uterus was normal in position and the ovary was adherent in the cul-de-sac. I freed the ovary, punctured the cyst, drained off the fluid and trimmed

¹ See original article, p. 536.

away a large amount of tissue that had formed the cyst wall, and then brought together the covering of the ovary with a fine continuous silk suture. She made a good recovery and has been entirely relieved of her pain. That the cystic formation does not recur in such cases is probably due to a reactive adhesive inflammation analogous to that which effects a cure of hydrocele. These cases are in line with those reported by Dr. Penrose. It is my experience that a prolapsed ovary is difficult to treat in any other than an operative way, and, with Dr. Penrose, I have always found a prolapsed ovary associated with uterine displacement or adhesions which keep it in its faulty position. I have never seen a case like those reported by Dr. Hirst.

The other cases reported by Dr. Hirst are very interesting, especially the two Cesarean sections. I desire to record, in contrast with those elective and timely operations, an emergency Cesarean section which unfortunately was followed by death.

I was called last week to see a patient in labor obstructed by what was supposed to be a fibroid tumor. The doctors in attendance had waited for the fibroid to be drawn up out of the way of the presenting part, and the result of the operation emphasized the ill effects which come from a policy of delay in these cases. After waiting two days, the supposed fibroid tumor not moving, attempts were made to push it out of the way, and, these failing, I was called to see the patient to perform Cesarean section. I found her with an elevated temperature and a rapid pulse; she had had a chill. An examination found no evidence of fibroids elsewhere in the womb. A hard mass blocked up the pelvis entirely; the cervix was pushed to one side; there had been no attempt at engagement: the membranes were not ruptured. I was not quite certain that it was a fibroid, but concluded that it was necessary to open the abdomen. I used a partially inverted kitchen chair to obtain the Trendelenburg position, opened the abdomen and extracted a living child, and found a ruptured and suppurating ovarian tumor which had grown between the layers of the right broad ligament and which had been pushed into the pelvic cavity by the growing uterus. The pelvic cavity, after enucleating the tumor, was found to be almost gangrenous, being dark blue and mottled in appearance, and the lateral wall of the lower segment of the uterus was in the same condition. I, of course, did a hysterectomy and hoped thereby to cut short the septic process; but the patient, after coming out of the ether, continued to vomit, her temperature within an hour returned to 101° F., and the progress of her peritonitis was not arrested, death occurring within forty-eight hours. I relate this case to draw the contrast between an elective Cesarean section and one undertaken at a time when the patient is doomed. I have no doubt if this woman had been operated on at an earlier date that her life could have been saved. The fatal character of this case simply emphasizes the danger of delay in removing

an ovarian tumor and the danger of waiting for Nature to care for any form of obstruction in the pelvis that complicates labor. From conversations with several medical friends I have learned of six cases of suppurating ovarian cysts complicating labor or the puerperium. In each case celiotomy was followed by death. Suppurating ovarian tumors seem to be peculiarly fatal to a parturient or lying-in patient, perhaps on account of the increase in the pelvic lymphatics, which rapidly take up and spread the infection.

DR. PRENDERGAST.—Dr. Hirst's remarks in the case of triplets reminds me of a case. I cannot vouch for it, though it comes from a reliable source, but repeat it as it was told to me. It was a case of twins in which an old practitioner in West Philadelphia delivered one child and left: twenty-four hours later he was sent for and the second child was delivered. The second child was delivered alive.

DR. B. C. HIRST.—I was careful to specify in the paper that the peculiarity of these cases of prolapsed ovary is that the ovary affected is perfectly healthy in structure and in every other way except in position. I excluded a large number of cases in which the ovary is diseased, adherent, or associated with retrodisplacement of the womb. One of my cases was associated with a retroversion of the womb, but the ovary occupied a very curious situation: it was in the median line, behind and way below the fundus of the womb, in an elongated Douglas' pouch. In this case I did a suspensio uteri along with the suspensio ovarii operation. These cases of prolapsed ovary are rare. I have only seen four that I can remember since I began practice. One was cured by pregnancy. I was called to see the patient a number of times, finding her ill and incapacitated; she acted, when her ovary came down, exactly as a person does when an inguinal hernia comes through the ring. She would be seized with pain and nausea, while shopping perhaps, and would have to go home in a cab. Sometimes I had to push the ovary up and sometimes it would go up of itself. It would stay up for varying lengths of time. An interesting fact in this case was that the prolapsed ovary had on two occasions produced abortion. The third time she became pregnant this accident was averted, and she has remained without symptoms for at least one and a half years. The other cases behaved in just the same way. One was a young girl who had been ill for five years when I first saw her. She had inflammatory disease of one ovary, which was plastered down tight, in a normal position however, and was very much enlarged and cystic. She suffered much pain on this side. On the other side she had a perfectly normal ovary in size and consistence, which on occasions would fall down into the bottom of Douglas' cul-de-sac; whenever this happened she was bed-ridden. I doubted the girl's story, for a time, that she could always tell when her ovary was prolapsed, but I examined her repeatedly over a period of eighteen months and found that her statement was perfectly correct. When the prolapse occurred I pushed the ovary up in place, where it

remained for varying lengths of time. In one period it stayed up in perfect position for nine months; during this time the girl was fairly comfortable, suffering from pains in the diseased ovary to a certain extent, of course. At the end of the nine months the ovary came down as she stepped from a car. Finally I operated on the girl, removing the diseased ovary on one side and sewing up the prolapsed ovary, which was perfectly healthy: the symptomatic cure has been perfect ever since the operation, more than a year ago. The patient told me only last week that she danced a whole evening—a thing she had not done for five years.

JOHN B. SHOBER, M.D., *Clerk.*

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of October 29th, 1896.

DR. RUFUS B. HALL showed specimens:

SARCOMA OF THE OVARY WITH INTRALIGAMENTOUS OVARIAN CYST OF THE OPPOSITE SIDE.

The patient, Mrs. E., age 44, mother of four children, was admitted to the Presbyterian Hospital the evening of September 6th. I saw her early the following morning, and found her suffering greatly from dyspnea due to abdominal dropsy. The abdomen was enormously distended with ascitic fluid; legs and feet swollen to more than double their normal size. The edema extended above the waist line in front and to the scapula in the back. The patient could not lie down, but slept some during the night by being propped up in bed. I aspirated the abdomen on the morning of the 7th and removed more than five gallons of fluid. After this I could outline a hard tumor filling the pelvis, extending to the patient's left side from a point three inches above the anterior spinous process and past the middle line. The cervix could not be felt per vaginam. Above the pubic arch, to the right, could be outlined a mass, believed to be the uterus, not much, if at all, enlarged. To the right of the uterus was a second tumor, distinctly fluctuating. The kidneys had secreted but little urine for several days, according to the patient's statement. Examination revealed a trace of albumin only. After the pressure was removed the quantity of urine was largely increased within twenty-four hours; at the end of forty-eight hours not a trace of albumin could be detected. Edema of the legs rapidly subsided and at the end of a week had entirely disappeared. The patient was anxious for an operation. I consented to make an exploration and be governed by what I found. This was done

September 14th, one week after the tapping. When the abdomen was opened the adhesions of the bowel to the tumor were extensive, but not very firm, and were easily overcome. The adhesions of the tumor to the pelvic floor and to the bladder were exceedingly firm and were separated with great difficulty. The tumor overlapped, in a measure, the uterus, and a portion of the top of the bladder was drawn up between the tumor and that organ. In separating this the bladder was extensively injured in spite of the greatest possible care. After enucleating the intraligamentous cyst, so much injury had been done to the uterus and bladder that I decided to perform a total extirpation of the uterus. It gave better drainage and a better opportunity of repairing the injury to the bladder. After trimming off the shreds of the injured bladder, I had an opening in that viscus about two inches broad by three inches long. The bladder could not be brought into the abdominal incision, especially at the upper end. By dissecting off the bladder from the anterior vaginal wall down to the ureters, laying both bare, I was able to bring the bladder up to the wound. I stitched it into the abdominal incision after the manner of dealing with the gall bladder in cholecystotomy. This left a portion of the fundus of the bladder denuded of peritoneum, but it was not difficult to bring the peritoneum over this from either side, stitching it across down to the opening into the vagina. Then by stitching the posterior and anterior flaps of the peritoneum together we had a T-shaped line of union. The incision was closed in the usual way. A soft-rubber drainage tube was inserted in the bladder through the abdominal incision and a self-retaining catheter placed for four days. Both were then removed and the patient recovered without an untoward symptom. She went home five weeks after the operation and is now enjoying good health. The solid tumor extending into the pelvis proved to be a sarcoma of the ovary weighing three and a half pounds, measuring three and a half by four and a half by seven inches.

ABDOMINAL HYSTERECTOMY FOR SARCOMA OF THE BODY
OF THE UTERUS, WITH A SMALL OVARIAN TUMOR.

Mrs. M., Troy, O., age 49, widow, was operated upon at my private hospital September 12th. The uterus was about the size of a child's head at birth; the cervix was not involved. I curetted away from the uterus as much cancerous tissue, almost as soft as brain substance, as would fill a coffee-cup. The hemorrhage was quite severe. I packed the uterus firmly with gauze and stitched the cervix tightly. I sterilized the vagina, opened the abdomen in front of and behind the cervix, and, on account of the size of the uterus and the firm adhesions, finished the operation from the abdomen as was originally intended. The adhesions to the ovarian cyst were firm and extensive, and the opposite ovary was also bound down by adhesions. The patient made a good recovery and went home at the end of four weeks.

HYSTERECTOMY FOR INFLAMMATORY DISEASE OF THE APPENDAGES.

Mrs. K., age 27, married six years, no children, no miscarriages. This patient was operated upon October 13th at my private hospital and the specimen here presented removed. She had suffered since the first year of her marriage with repeated attacks of pain and inflammation in the abdomen, so much so for the past year or more as to demand relief. The uterus was fixed, and a mass the size of a large orange could be felt on either side. The abdomen was opened. The specimen consists of the uterus, except the cervix, and the appendages firmly adherent to it. The one to the right consists of the tube and a suppurating ovary. The opposite appendage was firmly glued to the uterus, but does not contain pus. I think in this case the patient had a much better chance for recovery by hysterectomy than if we had removed the appendages only and left the uterus. It would have been almost entirely denuded of peritoneum. By removing the uterus with the appendages the peritoneum can be brought together, leaving the pelvis entirely covered. The patient had an easy convalescence.

The fourth case, Mrs. P., Xenia, O., age 44 years, married four years, no children, no miscarriages, has been conscious of a lump in her pelvis for a year or more. She was operated upon October 26th. I removed the uterus with a fibroid the size of a large orange on its anterior wall near the fundus, and one about the same size directly opposite. She had been subject to chronic salpingitis for years, and from the adherent ovaries had developed two ovarian cysts the size of large oranges. These also form part of the specimen. The operation was very difficult and a small portion of the cervix was left. The patient is doing well and I have no doubt will make a good recovery. These cases, taken as a group, illustrate beautifully some of the different conditions for which we are called upon to perform a hysterectomy. In the first two cases total extirpation was done, for obvious reasons; in the last two Baer's method was employed.

DYSMENORRHEA.¹

DR. PALMER.—I spoke, at the last meeting, of what I regarded as the proper classification of the varieties of dysmenorrhea—neuralgic, inflammatory, obstructive, and membranous. Dr. Johnstone opposed what I said, stating, as I understand it, that no such things as neuralgic or obstructive or membranous dysmenorrhea exist; that all dysmenorrhea is either uterine or ovarian, and that when uterine it arises either from infection or an imperfect development of the uterus. I take exception to the statement that there is no such thing as neuralgic or obstructive or membranous dysmenorrhea, and that all dysmen-

¹ Continuation of the discussion on this subject from the September meeting. See p. 416, March number of this JOURNAL.

orrhea which is uterine arises from infection or from an imperfect development of the uterus. In my opinion neuralgic dysmenorrhea does exist. It accords with my experience both in diagnosis and in treatment. I regard it as the most frequent form of dysmenorrhea. It may come on at the very beginning, and may last until the end, of menstrual life. It is one of the most troublesome forms to treat in many instances, although most cases can be entirely relieved. I think it should be recognized for the following reasons: Firstly, the conduct of cases and the manifestation of symptoms. Some of these cases commence at the very inception of menstruation, some not until months or years afterward; some do not begin until after married life, and some not until after parturition. Some, soon after they have commenced, or later, stop for one or several months or a few years, and then the pain returns. There is great irregularity regarding time, duration, and the position of the pain in these cases. Not a few suffer irregularly in intensity at different times, and in some the position changes. Again and again have I seen these patients, who have had at one menstrual period a severe headache, or a pain in some other part of the body, and no pain seemingly in the pelvic region, and I have seen these pains abate for a few months under a change of the hygiene of life, particularly a change of climate. I recall the case of a young lady who was once under my care. She was between 18 and 20 years of age, unmarried, the daughter of a very wealthy, prominent citizen of Cincinnati. She was an over-indulged child. She never took any exercise except when she went out socially. She dissipated a good deal, remaining up late at night. After the young lady had suffered from this trouble for several months her mother brought her to me. I thought it was a case of neuralgic dysmenorrhea and prescribed some medicines. Her condition was mitigated for a time, not relieved entirely, until after some months her parents took her to Europe. She menstruated on the vessel, and continued to do so normally while in Europe; at no time did she suffer any pain. Her meals then were more regular, doubtless more nutritious; she was out of doors a good deal and was diverted by the scenery. She came back much improved. Soon after she returned to her home she again began to suffer, for she had returned also to her former bad habits. I have no reason to think that this young lady had an ill-developed uterus or one that was infected. I have seen numerous cases improve for months and then return to their former condition. Secondly, another reason why I think many of these cases are neurotic is that there is no appreciable morbid condition of the uterus. I have been struck by the fact that many of these cases have no alteration in size, shape, position, direction, or condition of that organ. The uterus has been absolutely normal in every particular, as far as I could detect in every way of exploration. Thirdly, I think these cases are neurotic, for the reason that an antineurotic treatment relieves them. There is no better treatment for most

dysmenorrhoeic girls than an improvement of the general hygiene—in the quantity and quality of the food, in the time of its administration, in the correction of habits of constipation, and in increase of bodily exercise. Some remedies have a markedly good effect; most of them fail in effecting a cure without judicious hygiene. A treatment directed more particularly to the uterus itself, an electrical treatment, has, in my experience, relieved permanently every case. I employ the galvanic and faradic currents, preferably the former, using the positive or the negative pole intrauterine, according to the size of the canal, and according to whether the menstruation is too frequent and of too great duration or is diminished. I wrote quite extensively on the subject of dysmenorrhoea in 1883 and took the same general ground. This paper was read before the American Gynecological Society, which met that year in Philadelphia. I spoke of two remedies in particular. Both of them are addressed largely to this neurotic condition. Now, I do not desire to convey the idea that I believe all cases are neurotic. I think many cases are neurotic, and also spasmodic, and that some are rheumatic. The rheumatic element is proved to exist by the fact that they are relieved by antirheumatic treatment—salicylic acid and salicylate of sodium. Another most useful remedy in the rheumatic types of the disease is guaiacum, particularly the compound tincture of guaiacum—the old-fashioned Fenner's tincture. Some cases are purely congestive or inflammatory, as is proved by the fact that the agents most useful in overcoming the inflammation are most useful in relieving the pain. Often it is only necessary to address the treatment, during the interval, to this morbid condition, and the pain is relieved. Unquestionably some cases are obstructive, because when the obstruction is overcome the pain disappears. That there is such a thing as membranous dysmenorrhoea I have not a particle of doubt, from the fact that we see the membrane. It is similar to a disease of the larynx in which a false membrane is formed. When the underlying condition—the chronic endometritis—is relieved, the formation of the false membrane ceases to occur and the pain is gone. Dysmenorrhoea is not a disease any more than is dyspepsia; it is a symptom of several diseases, functional or organic. Spinal irritation has features like dysmenorrhoea. It is a spinal neurasthenia expressive of a general neurasthenia, just as we have a gastric neurasthenia expressive of a general neurasthenia. Neuralgic dysmenorrhoea is also expressive of a general neurasthenia. To a great extent we must treat this general neurasthenia, and its local manifestation will take care of itself.

DR. JOHNSTONE.—I have been misquoted. I simply stated that these dysmenorrhoeas do not deserve a place by themselves, and that there are but two great classes of dysmenorrhoea from the standpoint of etiology—arrested growth and infection. Those are the two primary causes of dysmenorrhoea. When that confusing classification, to which I have been a heretic

for years, was given us at the last meeting, I could not refrain from making the attack I did. I heard that classification from Thomas in 1874, from Goodell in the early eighties, and it was taught all through the American schools. The more I studied the construction of the endometrium and the pelvis in general, the more I was sure that the old classification was a coarse classification in which all things were mixed. The one cloak behind which we have hidden more ignorance, perhaps, than all others, is neuralgia. I have lived long enough to see it run out of one specialty. When I graduated neuralgia of the eye was rather common; now choked disc and neuritis have cut off many cases of so-called neuralgia, as have also eye strain and hypermetropia. We give a name to the lesion instead of speaking of the pain in the nerve, which is all that neuralgia means. Whenever anything is said to be neuralgic there is at least a suspicion that we do not know what is the matter; it is a cloak with which we put off the patient. The term has been used until many have gotten to think that neuralgia is a disease. After having studied the endometrium and followed closely the applications of the Stephenson wave, I was able to arrive at a satisfactory explanation of all these cases of so-called neurasthenic conditions about the pelvis. There are two great causes which give positive pain in menstruation: arrested development and infection. By arrested development we mean arrest of the neck, body, both neck and body, ovary, tube, ligaments, or of everything; and you know there are arrested growths of all these structures. That is one of the primary causes of difficulty. Next comes infection, because if there is arrested development there is apt to be pocketing somewhere, particularly of the neck, and the pain comes very often only after infection. You know how common it is to have a pin-hole os, which gives no pain until there is infection. Again, a very small opening, the result of arrested development, may cause pain. Arrested development of the ovaries may give a good deal of pain. The previous speaker stated that ovarian pain is not dysmenorrhea; but in clinical work we cannot differentiate the two, except that, if the pain is relieved by the flow, it is very apt to be due to something above the internal os. My reasons for the classification I suggested are its simplicity and the fact that it leads us to search for the cause of the trouble. The neuralgic variety of dysmenorrhea is that which I attacked the hardest and which I hope to see dropped from this specialty. Many cases of so-called neuralgic dysmenorrhea are not the light forms that the preceding speaker has described, that come and go, depending on the condition of the patient, but they persist through life. Many have a smouldering cirrhosis of the ovary, the broad ligament, or the uterus itself. I remember helping Mr. Tait remove a pair of ovaries, apparently perfectly healthy. The only thing we could find were little hard lumps in the broad ligament, resembling jelly in consistence. They give rise to more pain and trouble than almost any other so trifling a thing. Time and again we see cases

called neuralgic dysmenorrhea, and upon operation find some old adhesions. So much is this the case that I have laid down the dictum that pain always means tension. There cannot be pain without tension, and it was from that I worked out that intermenstrual pain is due either to a hard tunica albuginea put on the stretch or to tension upon long filiform adhesions. I have operated on five or six such cases and have always found this strain to account for them. You may then ask how I would account for the cases the doctor has just related, who have bad habits and keep themselves upset by bad hygiene. You know there is nothing more painful than a bad muscle. You have all had cases complaining about their legs, who were getting out of bed after several weeks' rest. Many girls who have pain in the back suffer simply because they do not use the back enough; for that class the bicycle is a perfect godsend. But, you will ask, why do they have the pain in the pelvis? As I described in the paper on the Stephenson wave, when that wave goes wrong it can be the source of pelvic pain, just as much as congestion of the liver and stomach can cause pain in these organs. It is believed by many that neuralgia of the trifacial is due to effete products which should have been gotten rid of; and that it is for this reason operations upon the Gasserian ganglion are useless.

If you study carefully one of these cases, and the woman cannot stand the pain any longer, you are warranted in opening the abdomen and making the diagnosis afterward—that is, when you cannot find anything from below and you are satisfied the general system is in good shape, and that the Stephenson wave should have its rise and fall without giving trouble. I have often found the cause in an old adhesion. At the time when the patient should have been nourishing these organs she was stunted; probably she had typhoid fever, a low grade of tuberculosis, a bad flow, or perhaps a tubercular diathesis, etc.; then the Stephenson wave failed to go through these structures and cleanse them of effete products. This resulted in a thickening of the tunica albuginea, a thickening of the peritoneum itself, giving rise to the formation of connective tissue and pinching some of the nerves. Until we recognize that there is a cause for these cases we will not get down to work and find what is the true reason for the trouble. I hope to see the time when we shall not be content with the diagnosis of neuralgic dysmenorrhea.

DR. T. A. REAMY.—It was not my privilege to hear the paper of Dr. Palmer, but I have listened to-night to his résumé of the paper with pleasure and heartily indorse his positions. They are in accord with clinical experience. The last speaker (Dr. Johnstone) informs us that he has thought seriously upon this subject, has deplored the darkness and ignorance which overshadow it, and has finally concluded that duty demands of him to give us the light. He condemns the term neuralgia, says that it means nothing, is simply a cloak for ignorance, and furnishes young men an excuse for idleness, that they may not

investigate and demonstrate causes. Strange that such eminent men as Ainslie and Loomis, and Osler and Whittaker, the last-named very recent authorities, should seek to cloak their ignorance by writing of neuralgia! All cases of dysmenorrhea, he avers, are due either to infection or to arrested development. It seems to me this attempt at simplifying nomenclature only confuses it.

DR. JOHNSTONE.—I spoke of the etiology, not of the nomenclature, of dysmenorrhea.

DR. REAMY.—The gentleman insists that the name of the disease shall indicate its cause or causes. And since he denies that there can be such a condition as neuralgia, he objects that we should longer speak of "neuralgic dysmenorrhea." He says that pain always means pressure. Unquestionably pressure will invariably cause pain. But it is not demonstrated that pain cannot be induced in the absence of pressure. In the early years of my professional experience it was my lot to treat many persons suffering from malarial infection manifesting itself in various forms. I have treated hundreds of persons suffering from so-called brow ache. This is a most common manifestation of malarial infection, as will be attested by any gentleman present who had experience as a general practitioner thirty to forty years ago. The pain is above the eye, along the distribution of the first division of the trifacial. Every one knows that a consequence of malarial poisoning is diminution of the proportion of red blood corpuscles, disintegration of the hemoglobin, and, as recently demonstrated, the development of organisms in the blood corpuscles, which latter probably largely explains the pigmentation of the older observers. But can any one explain how this can produce pressure upon the first division of the trifacial? In many of these cases the symptoms promptly yield to a few full doses of quinine. But this is due to the specific action of that drug upon the specific blood state, not upon its relief of pressure, nor yet upon its cure of a neuritis, for none existed. This pain is neuralgic. A patient suffering from anemia from any cause is prone to experience neuralgic pains. Here the pain is due to altered nutrition of sensory nerves and may be in any part of the body. I have repeatedly had under my care young women who had inherited, perhaps, a poor constitution, or who kept bad hours, took too little exercise in the open air, studied too hard, possibly read badly selected literature, ate poorly nutritious food. These subjects were anemic. They suffered severely from dysmenorrhea, and had done so for many months, in some instances for years. Frequently the history was that menstruation was unattended with pain during the first year after its establishment. I put these patients upon a good regimen covering any point of delinquency, and as soon as nutrition was perfect and general health established dysmenorrhea vanished, and all of this without any local treatment directed to the consequences of infection, direct or remote, and without any treatment for removal of the consequences of arrested development of the uterus or other

sexual organs. My clinical observations in these matters have found ample confirmation in the experience of others. Many years ago, when a resident of Zanesville, O., I had under my care a young lady in high life. She was a fine musician and highly cultured. She had inherited from her mother the neurotic temperament. She came to me at the age of 24 and remained under my care for six years. She had menstruated from the age of 14, and without pain during the first four years; then dysmenorrhea gradually developed. Frequently her suffering was almost unendurable. She did not suffer from leucorrhea. General health was good, although, as above stated, she was of delicate physique and neurotic. She had a near relation who resided in Washington, D. C. She made frequent visits to his home, often remaining there three or four months, and these visits were made at different seasons of the year. During her sojourn in Washington she invariably menstruated without pain. Returning home the old experiences were repeated. Would any one claim that dysmenorrhea was here due either to infection or to arrest of development? Neither was it due to disease of ovaries or adhesions of the broad ligament. The trouble was neurotic. This was neuralgic dysmenorrhea. Should cases of this character, and cases similar to those referred to in my opening remarks, be subjected to dilatation, curettage, intrauterine medication, electricity, etc., under the false belief of their origin in arrested development? Such practice is not only unscientific but criminal. Arrest of development is recognized by all as a prolific source not only of many forms of uterine deviation, but of dysmenorrhea; so likewise does infection play an important rôle in the production of inflammatory conditions and local defects of nutrition resulting in dysmenorrhea; but the attempt to classify all cases under these etiological heads can only lead us more deeply into the darkness from which we have been promised delivery. Some years ago I saw a married woman in consultation with Dr. Scott. She had been married fifteen years and was sterile. All of the time she had suffered fearfully during menstruation, though for three years after menstruation was established, so she said, she did not suffer. We found antelexion with chronic endometritis. We dilated, curetted, packed, medicated. This plan was repeated both by Dr. Scott and myself, with but temporary relief. Finally I introduced a hard-rubber intrauterine stem. With this in position she menstruated without pain; if it was removed the pain returned. At last I directed that it should be worn constantly through two menstrual periods and the intervening period, and that it should be removed at the close of the second menstruation, and that intercourse should take place immediately upon its removal. Conception occurred, and Dr. Scott delivered the woman of a healthy child. This was a case of obstructive dysmenorrhea, and the sterility was doubtless due to the same cause and to the endometritis, which was a secondary condition.

DR. JOHNSTONE.—This was a case of arrest of development.

DR. REAMY.—Not so, for you will recollect that the woman menstruated from 14 to 18 without pain. No doubt many cases of painful menstruation are due to an unduly dense and firm condition, inflammatory or otherwise, of the ovarian tissue, so that when a Graafian vesicle seeks to rupture and discharge its ovum this process is resisted and delayed. Pain from pressure would undoubtedly ensue. Then, as there is at each menstrual epoch congestion of all the pelvic vessels, and as there is, at least at the commencement of the flow, thickening of the endometrium, it follows that there must be more or less pressure and more or less pain, though a few women menstruate without pain. Even severe pain may and often does occur, under these conditions, in women in whom no pathological lesions whatever can be found. These are subjects of neuralgic dysmenorrhea.

DR. EDWIN RICKETTS.—I am of the opinion that the pathology of dysmenorrhea must be rewritten. There has been unnecessary confusion in the classification as given us upon the benches. I do not know of any simpler classification than that given by the second speaker upon the floor this evening, which I think about covers the ground. It is strange how the old neuralgia of the bowels has disappeared since proper attention has been given the appendix. It is strange, too, how malarial fever, after a knife is thrust into a hepatic abscess, will disappear without the use of quinine. I remember a case which Dr. Johnstone saw with me, a young nurse in this city who weighed little more than ninety pounds. She was a subject of dysmenorrhea, and upon examination we found a small, infantile uterus. She had been subjected to all the known remedies for this class of diseases, with no benefit whatever, and could secure no relief without continuously taking opium. An abdominal section and the removal of the appendages in that case cured the patient, so that she walked into my office the other day weighing over forty pounds more than formerly. She had previously been treated for neuralgia of the womb, but it proved to be a clear case of lack of development. The subject is most important, and I want to raise my voice against the unduly complicated classification. As to neuralgic dysmenorrhea, I should like to refer to a case that came under my observation some years ago. The patient was a young woman who had been married more than a year, in whom there was an obstructive dysmenorrhea. Dilatation was resorted to twice (it was before the days when packing the uterus followed the dilatation) and she was relieved for two or three months, when the pain returned. Pregnancy took place and the patient has been well from that day to this. I believe the cure was due to the overcoming of the lack of development in the uterus, and that the treatment was purely mechanical, a good dilatation from pregnancy. Whereas the dilatation did make matters better by allowing the pregnancy to occur, I now do not believe I did the patient a particle of good by the dilatation in itself. As to the subject of neuralgia, it has been my fortune to reside for ten

years in a malarial region, and I know that to a certain extent what Dr. Reamy said is true, that the mercurial purgatives, iron, quinine, and arsenic cause many of these cases to yield. But I think that even in those cases we are treating the symptoms more than the real cause.

DR. REAMY.—The malarial poison, the malarial germs in the blood, are killed by the quinine.

DR. RICKETTS.—Yes; but I cannot believe that we can have a true neuralgic condition of the uterus.

DR. REAMY.—Neither do I.

DR. RICKETTS.—On the other hand, I do not believe we can have a neuralgic dysmenorrhea. There certainly is a cause. I have treated a good many cases from the neuralgic standpoint and have been very much disappointed, for in every case I have found some cause back of the neuralgia.

DR. BYRON STANTON.—I am in full accord with the classification referred to this evening by Dr. Palmer and Dr. Reamy, which has stood for a good many years, and I think we should keep it until there is offered something better. That there are cases of neuralgic dysmenorrhea all will admit. That there are obstructive and membranous varieties is undoubted. There is a class of dysmenorrheas due to a neuralgic condition which I do not think it is amiss to speak of as neuralgic dysmenorrheas. I agree with Dr. Johnstone that neuralgic dysmenorrhea is often used as a cloak. But similar conditions in other parts of the body are termed neuralgias, and why not here? It seems to me the use of this term is very appropriate in these cases. This classification, that the gentleman says he heard so long ago in New York and later by Goodell, he would hear taught there now simply because nothing better has been offered. If there is any condition that has been well classified or for which a satisfactory classification has been given, it is this condition which we call dysmenorrhea.

DR. E. W. MITCHELL.—I want to ask Dr. Johnstone if I understood him to say there are cases of dysmenorrhea due to accumulation of effete products—toxic cases, as we would say.

DR. JOHNSTONE.—I said that there may be.

DR. MITCHELL.—What classification would you give these?

DR. JOHNSTONE.—They are so rare it is next to impossible to say, but I believe some cases said to be neurotic are due to such a cause.

DR. MITCHELL.—It seems to me the whole difference is a difference of definition. If a toxic condition of the blood, the irritation of effete products, the pressure of a nerve, or congested blood vessels cause congestion along the trifacial nerve, we call it neuralgia. Now, if there are cases that exist—and it makes no difference about the number of such cases—of dysmenorrhea due to the irritation of effete products, they should be subject to some classification. If we may give to a certain condition the name "neuralgia," what is the objection to giving the name "neuralgia" to a similar condition which exists in the nerves of the ovary, the uterus, or other organ, produced

by the same conditions? I cannot see the objection to the term, if that be true.

DR. STEWART.—I think Dr. Mitchell struck the keynote when he said it is largely a difference of definition. If the gentleman will say that the name "neuralgic dysmenorrhea" is not given as a cause of the condition, there is practically no difference between us. If you follow along the argument given by Dr. Johnstone, it is simply the expression of a symptom which is the most common condition. The classification given by Dr. Johnstone is not satisfactory. I believe he is right to a certain extent. The term "neuralgia" is simply a something used to express a certain condition, without reference to the cause. I believe we ought to do away with these indifferent terms. The case reported by the first speaker was in all probability that of a victim of imperfect elimination, which means what? If it means anything at all, as far as the causation is concerned, it means a poisoning at the menstrual period.

DR. J. AMBROSE JOHNSTON.—In order to clear up this subject it would be well to compare some other diseases. The word peritonitis is used to express our belief that certain pathological conditions exist which were produced by well-known causes. Take supraorbital neuralgia, and when we use that term we always think we have behind it a pathological lesion brought on by some cause, as malaria or faulty nutrition. And may we not likewise use the term neuralgic dysmenorrhea to show that pain exists in the uterus, and at the same time carry in mind the fact that there are certain causes for this form of pain? I do not care what word we use, so long as it points out the pathology and the causes for the condition. If we say "dysmenorrhea," we at once run over in our mind the various causes of pain in the uterus, and prefix that adjective which best indicates the pathology or etiology. I believe we have rheumatic dysmenorrhea, brought about by certain conditions of the blood, just as sometimes we have pain, for instance, in the coccyx, and the administration of such drugs as the salicylate of soda will give relief. When there is a toxic condition of the blood the congestion of the uterus or the pelvic cavity at the time of menstruation may cause pain to express itself at that time. This pathological condition of the blood may extend throughout the year, and make itself known only at the menstrual periods when the pelvis is congested. With Dr. Johnstone I believe most of these cases are caused by infection, and only a very few by mechanical conditions of the uterus. Membranous dysmenorrhea I recognize as an infectious trouble. There exists an inflammatory condition of the membrane, the exact nature of which it is difficult to determine; but there is no doubt in my mind that we have an infection back of it.

DR. JULIA CARPENTER.—My thoughts on this subject have been most nearly expressed by Drs. Stewart and Johnston. It seems to me a great deal of the apparent difference of opinion might have been avoided by a clear definition of terms. One

uses the word "neuralgia" to express a symptom, and another the name of the disease.

DR. JOHNSTONE.—Part of the old classification is etiological and part symptomatic. I attempted to give, not a classification, but my ideas of the etiology. Dr. Mitchell refers to the eliminative form of dysmenorrhea. Undoubtedly there are toxic substances in the blood, as has lately been proved of the xanthin compounds, about which I do not intend to say anything at this time, because the subject is *sub judice*. A patient came to me to be relieved of headaches. She had about twenty-two in the year, nearly two a month, the most terrific you can imagine, and in that case I got rid of a lot of gynecological mischief. These headaches were reduced to about six a year as a result. My attention then was directed to the xanthin compounds, but for some reason or other no test was made for them. During the summer the patient got hold of some iron water and her digestion was all upset, and she came back with the headaches worse than ever. Upon testing the case I found, at the time of the height of the menstrual wave, the urine was loaded with the xanthin compounds. This, as I have shown before, illustrates that when the wave goes wrong it materially affects the metabolism of the body. Such cases are sometimes benefited by a change of climate. The vague term "neuralgia" is one which I do not like. People too often believe it is a disease. I want, for one thing, to add to the etiology morphine, for many cases are due to the opium habit, and in these pain is nothing but the cry of the tissues for opium.

DR. PALMER.—Dr. Johnstone refers to the old-fashioned nomenclature of diseases of the eye. Nobody pretends to say that what was accepted ten or twenty-five years since would be accepted now. And nobody has ever denied that the word "neuralgia" is a cloak for a good deal of ignorance. This is no good argument in his behalf. Dr. Johnstone's words are different to-night from what they were at the last meeting. To the best of my recollection, he said there was no such thing as neuralgic dysmenorrhea, that there was no such thing as membranous dysmenorrhea, and that all dysmenorrhea was due either to faulty development or infection. A neuralgic dysmenorrhea is a painful menstruation in any woman, during the menstrual life, in whom, by all possible means of pelvic exploration, no alteration in the shape, size, color, condition, or position of the uterus can be discovered. There is a hyperesthetic condition of the endometrium, most noticeable about the os internum; nothing more can be detected. The uterus is normal in development and is not infected from any source. I cannot reasonably teach otherwise until there is more light shed on this subject.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of January 6th, 1897.

The President, F. H. CHAMPNEYS, M.A., M.D., in the Chair.

Specimens.—The reports of committees on DR. REMFRY'S and DR. LEWERS' exhibited at a previous meeting were read. DR. AMAND ROUTH: *Case of hysterectomy for malignant papilloma.* DR. GOW: *The uterus from a case of Cesarean hysterectomy for fibroids.* DR. ARNOLD W. W. LEA: *Broad-ligament cyst with twisted pedicle.* DR. C. HUBERT ROBERTS: *Calcified fibroma of broad ligament*, with drawings and microscopic sections.

MR. ALBAN DORAN considered that fibroma of the ovary caused less pain than dermoid. Ascites was quite frequent in ovarian fibroma, while in uterine myoma, also a hard and heavy tumor, it was decidedly rare.

DR. MACNAUGHTON JONES read a note on

THE ETIOLOGY OF ECLAMPSIA.

After referring to the well-known theories of the causation of this disease, the author proceeded to relate an instance in which induction of abortion was necessary for albuminuria. She had well-marked eye symptoms, much sickness and headache. After abortion took place further fits occurred, followed by coma. The author had administered two subcutaneous injections of pilocarpine. The patient recovered.

DR. JOHN PHILLIPS, while agreeing with the treatment adopted in inducing abortion, considered that the use of pilocarpine was attended with grave danger. He called attention to his paper "On the Value of Pilocarpine in Pregnancy, Labor, and the Lying-in,"¹ in which the whole subject had been carefully considered and thirty-nine cases in which pilocarpine had been used in convulsions reported. In nine of these cases dangerous symptoms followed shortly after the exhibition of the drug, and seven died. His experiments showed that rapid edema of the lungs took place, sometimes within a few minutes of the injection, and he ventured again to warn his fellow-practitioners against its use.

DR. HERMAN said that pilocarpine was a dangerous drug in puerperal eclampsia; it made the skin sweat, but it also made the bronchial tubes sweat. One of the dangers of this disease was the liability to pulmonary edema and inflammation after

¹ Obstetrical Transactions, vol. xxx., p. 354.

the fits had ceased, and this danger was increased by the use of pilocarpine. He approved the induction of abortion in this case, and to it, and not to the pilocarpine, he attributed the good result.

DRS. W. S. A. GRIFFITH and A. W. W. LEA read a paper on

BREECH PRESENTATION WITH EXTENDED LEGS.

This paper was the result of seventeen cases, which were briefly described, and the following conclusions were arrived at: 1. The extension of the legs in incomplete breech presentations may be either primary or secondary. 2. In the primary variety, which occurs before labor has begun, the breech engages readily in the brim and the diagnosis can be made. 3. In the secondary variety the extension occurs during labor. This form is more frequent than the primary. 4. This complication is more frequent in primiparæ, viz., seventy per cent of the cases. 5. The prognosis, with regard to the child, is not worse than is that in pelvic presentations in general. 6. Cephalic version is advantageous before labor is advanced. It is not usually possible in the primary, but may be so in the secondary variety. 7. Most cases are delivered naturally. 8. Prophylactic reduction of the leg is only required in exceptional cases. 9. It is probable that flexion of the leg on the thigh is preferable to bringing down the leg into the vagina. 10. If aid is required in the lower part of the pelvis the soft fillet will usually effect delivery.

DR. AMAND ROUTH congratulated the authors on their very valuable paper. He doubted very much if their statement, that the prognosis as regards the child was no worse when the legs were extended than in ordinary breech cases, was correct. This might be so in a hospital, where an exact diagnosis would be made early in labor, but in general practice he believed the result was very different. He had seen cases where a correct diagnosis of the cause of the delay had not been made, and others where a diagnosis had been made but efforts to bring down the legs had failed. He also thought that prolapse of the cord in breech cases was not so serious as had been stated in the paper.

DR. C. HUBERT ROBERTS asked the authors if they could explain the cause of the curious primary extension of the legs in these cases, as nothing had been written at present on the matter. Dr. Roberts thought that the question of diagnosis was very important, because it was evident that interference was necessary in such cases. The question arose, when ought we to interfere? With regard to the children he had been led to believe that the mortality was very much greater. He considered that the use of the forceps was dangerous.

DR. SPENCER did not think that primary extension of the legs could be diagnosed, from the fact that they assumed that position after birth. The great majority of children tended to

extend the legs after a difficult birth in that position, but he did not think it proved that the limbs had occupied this position before labor. The child presenting by the breech was known not infrequently to lie with its legs stretched out toward various parts of the uterus, but he did not think the feet were forced up to the shoulders till labor occurred, except in the rare cases of genu recurvatum, in which, however, the joint was not ankylosed, as he understood the author to state, but subluxated.

THE PRESIDENT said that he had seen a case of primary extension of the legs with vertex presentation lead to difficult delivery. A patient, with a normal pelvis and a small child, fell in labor which could not be terminated by natural efforts. On examination a presentation of the vertex in the first position was found, together with presentation of the left arm and the left foot. He suspected twins, and thought that the foot, at least, was contributed by a second fetus. The child was delivered by forceps and no twin was present. The legs after birth lay on each side of the neck. The newness of the subject might be illustrated by the fact that so careful and learned an observer as the late Dr. Matthews Duncan told him that he had never seen a case of primary extension of the legs. As to the question when to interfere, interference should always be resorted to when, in a case of breech presentation, delay took place at any stage, even in the first stage. The paper illustrated the fact that the subject is still not thoroughly understood. It might be thought that the cases of difficulty would be those of large children, contracted pelves, and primiparæ; but on the one hand many large children were delivered easily, many primiparæ even with large children experienced no difficulty, and contracted pelvis counted for a very small number of difficult cases. On the other hand, difficulties not infrequently occurred with normal pelves and small children. One mode of delivery was not insisted on in any book that he knew, though it might be mentioned casually—that was pressure from above. In any really difficult case where the breech was too low for the bringing down of the foot, this pressure, applied judiciously and firmly by a skilled assistant, the patient being in the lithotomy position, was of the greatest service, and he always used it.

Meeting of February 3d, 1897.

The President, F. H. CHAMPNEYS, M.A., M.D., in the Chair.

Specimens.—MR. DORAN: 1. *Fibroma of ovary; impaction; ascites; removal.* A year before removal this tumor was impacted in the pelvis; the uterine cavity measured three and a half inches. It was reduced with ease. In the autumn ascites set in and the uterus measured four inches; the tumor, eight inches broad, lay in the abdomen across the pelvic brim and quite movable. Mr. Doran removed it on January 12th. The pedicle was five inches broad and very short, otherwise no

difficulty was encountered, and the patient did well. She was 49 years of age. 2. *Lipoma of lumbar region*, four pounds in weight and of twenty years' growth. The patient was 55 and had borne ten children. She was very corpulent. In 1876 the tumor measured three inches, and remained about that size till 1891, when it began to grow very rapidly. It was removed in 1894 without any difficulty. It then measured nineteen inches in its long diameter, bulging conspicuously from the loin forward and outward. 3. *Fibroma of the abdominal wall increased during pregnancy*. The patient was 32 and had borne five children. The tumor was first seen in December, 1895, and the patient became pregnant shortly afterward. It increased over two inches in its long diameter during pregnancy, and was removed five weeks after delivery. It lay in the substance of the left internal oblique muscle and probably originated in the conjoined tendon. Neither the external oblique nor the peritoneum was involved or adherent to the tumor. Mr. Doran called the attention of the Society to the great predominance of parietal tumors of this kind in women.

DR. JOHN PHILLIPS presented a specimen of

FETAL MONSTROSITY (HEMICRANIA).

The mother, a young primipara, was delivered at the eighth month of pregnancy; the labor was complicated by marginal placenta previa. The fetus presented by its face, and labor terminated with the chin to the anus, as in first vertex delivery. The placenta was of enormous size and irregular shape. The fetus was stillborn. The external appearance of the monstrosity is exactly depicted by Ahlfeld, the characteristic frog-like attitude being well seen. The tumor over the site of the occipital and upper spinal regions has been removed in the specimen, and was found to consist of a broken-down brain substance with various nerves passing from it. The whole of the posterior portion of the cranial vault and the posterior vertical laminae are entirely absent. The lower jaw articulates in a fossa in normal relation to the zygoma. The generative, digestive, cardiac, and pulmonary systems are normal. The fetus is a female. The left foot has an equino-varus, the right a calcaneo-valgus.

MR. TARGETT showed a specimen of

RUPTURED GESTATION IN AN ILL-DEVELOPED RIGHT UTERINE CORNU.

The gestation sac was connected with the cervix of the well-formed left cornu by a small, rounded cord, which seemed to be traversed by a minute canal. This cord was three inches long and represented the lower end of the Müllerian duct. The evidence that the gestation sac was uterine and not tubal rested upon the facts that the right round ligament took origin from it and that the sac possessed a normal right broad ligament with a Fallopian tube and ovarian ligament of the usual length.

The left cornu was lined with decidua and its cervix plugged with mucus. A rupture of the sac was caused by vomiting in consequence of the administration of an aperient draught, and was speedily fatal. The patient was in the fifth month of pregnancy.

DR. GRIFFITH said he had carefully examined two similar specimens, with the object of endeavoring to identify and trace the Müllerian duct or any channel of communication between the developed and the undeveloped horn containing the gestation sac. The method he adopted was by microscopical section through the whole thickness of the septum uniting them. He had failed to find any trace of such a canal in either specimen, and he placed no reliance on a bristle for this purpose, which would naturally find some passage along the bundles of muscle fibres or some vessel or nerve.

DR. CULLINGWORTH exhibited a specimen removed by operation a few hours previously, consisting of

THE FALLOPIAN TUBES AND OVARIES.

The right Fallopian tube was enlarged, tortuous, and completely occluded by adhesion of its fimbriated extremity to the surface of the ovary. Its diameter was one inch and its length four and a half inches. Its lumen was dilated and contained about half a fluidounce of greenish-yellow pus without odor. The mucous lining was covered with granulation tissue without any trace of ulceration. The right ovary was enlarged, and on section was seen to contain a large number of small abscesses with walls of thick, opaque, whitish tissue, giving them the appearance of degenerate corpora lutea. Dr. Cullingworth said that he had exhibited the specimen chiefly on account of the interest attaching to the condition of the ovary. It was unusual to find a large number of small abscesses in the ovary except in tubercular disease. In this case he believed the inflammation to be of gonorrheal origin, the purulent vaginal discharge during the first inflammatory attack having probably been due, not to the bursting of an abscess, as was then supposed, but to acute gonorrhea. The result of the operation showed that nothing short of complete removal of the diseased parts would have sufficed to give the patient relief.

The annual general meeting of the Society was then held. The reports of the Honorary Treasurer (Dr. Potter), the Honorary Librarian (Dr. Griffith), and the Chairman of the Board for the Examination of Midwives (Dr. Cullingworth) respectively were read and adopted, and a vote of thanks to each gentleman passed.

The President then delivered his valedictory address. It was moved by Dr. Potter and seconded by Dr. Hurry that a vote of thanks be accorded to the President for his address and

that he be requested to allow it to be printed in the next volume of the Transactions." This was carried unanimously.

A vote of thanks to the retiring Vice President and members of Council, proposed by Dr. Playfair and seconded by Dr. Sinclair, was passed.

The names of the officers recommended by the Council and elected were as follows: *President*—Charles James Cullingworth, M.D.¹ *Vice Presidents*—William Duncan, M.D., John H. Galton, M.D., Thomas Cargill Nesham, M.D. (Newcastle-on-Tyne), Jamieson Boyd Hurry, M.A., M.D.¹ (Reading). *Treasurer*—John Baptiste Potter, M.D. *Chairman of the Board for the Examination of Midwives*—Percy Boulton, M.D.¹ *Honorary Secretaries*—William Radford Dakin, M.D., John Phillips, M.A., M.D. *Honorary Librarian*—Walter S. A. Griffith, M.D. *Other Members of Council*—Thomas Rutherford Adams, M.D. (Croydon), John Walters, M.B. (Reigate), Joseph Thompson (Nottingham), Albert Kisch, Arthur Nicholson, M.B.¹ (Brighton), Richard Pinhorn¹ (Dover), Thomas Watts Eden, M.D.¹ Amand Routh, M.D., Frederick John McCann, M.B., C.M.,¹ William Gandy,¹ George Henry Pedler,¹ Montagu Handfield Jones, M.D., William Rivers Pollock, M.B., B.C., Alfredo Antunes Kanthack, M.D.,¹ Angus Fraser, M.D.¹ (Aberdeen), Harold A. Des Vœux, M.D., Charles Hubert Roberts, M.D.,¹ Walter W. H. Tate, M.D.

REVIEWS.

THE DISEASES OF INFANCY AND CHILDHOOD. For the use of Students and Practitioners of Medicine. By L. EMMETT HOLT, A.M., M.D. New York: D. Appleton & Company, 1897.

With similar works just issued by Rotch and Jacobi, and a new edition of Keating's "Encyclopedia of Diseases of Children" in the course of preparation, it becomes a matter of serious doubt as to whether there is really a "crying demand" for fresh books on the same subject. Without intending to slight future writers in the same field, it might be well to remind them, before attempting to write a book, to first determine whether they are going to fill a "yawning gap" in the vast body of medical literature as it already exists, or whether they simply propose to repeat well-known facts in a new form. In the latter case the constant multiplication of books on the same subject does such writers no especial good and only tends to harm the standard works already published. In the present instance, however, the author has for years been known in the pediatric world as an able, original, and conscientious worker,

¹ These gentlemen were not on the Council or did not fill the same office last year.

and hence we are not surprised to find that he has written a praiseworthy book.

The first section of the work includes chapters on the hygiene and general care of young children, the growth and development of the body, and a very practical one on various therapeutic measures, such as stomach-washing, nasal syringing, etc. Part II. begins with diseases of the new-born, then goes on with nearly a hundred pages devoted to the important subject of nutrition. Disorders of nutrition include scorbutus and rickets. Then follow diseases of the digestive system, the respiratory apparatus, the circulatory system, the nervous system, the blood, lymph nodes, bones, infectious diseases, rheumatism, and diabetes. The illustrations are good, though occasionally we meet one—like that illustrating the method of syringing a child's nose—which is somewhat misleading. The author is opposed to the old-fashioned method of using poultices in pulmonary diseases. In such cases he prefers the oiled-silk jacket. The chapter on the resuscitation of the newly born child lacks in emphasizing the necessity of system in applying the various measures recommended. "Sepsis of the newly-born" is described under the new heading of "acute pyogenic diseases of the newly-born." It is a question in the reviewer's mind whether anything is gained by such changes in nomenclature.

Pastured foods receive a much larger share of notice than they deserve. Otherwise the chapters on "Infant Feeding" are excellent. The author has done considerable original work in this direction, and gives credit to Rotch for similar efforts in this field. We believe the author to be wide of the mark in claiming that ninety per cent of infants can be raised on artificial food from the very beginning of life. The pendulum of professional opinion having swung from the one extreme of attributing nearly every disease of childhood to dentition back to the opposite extreme of denying it any place at all as an etiological factor, is now reaching a point of equilibrium. Holt, like other recent authorities, is now coming to the conclusion that certain disturbed states in the infant can fairly be attributed to abnormal dentition. We are pleased to find that he is an enthusiastic advocate of antitoxin in diphtheria.

Altogether the book, consisting of more than a thousand pages, is written in a style at once clear and to the point. It fulfils its object admirably and will rank high amongst the standard text books on pediatrics x.

LEHRBUCH FÜR HERAMMEN—Text Book for Midwives. By order of the Royal Saxony Ministry for the Interior. Written by PROF. G. LEOPOLD and PROF. P. ZWEIFEL. Sixth edition, with 38 woodcuts and 8 colored plates. Leipzig: S. Hirzel, publisher, 1897.

This book, comprised of two hundred and ninety-six pages, is written exceedingly well, and is an exponent of modern midwifery as it should be practised by midwives. In the first part

it deals with the gross anatomy of the female pelvis as it should be understood by midwives, carefully avoiding all terms and complicated conditions too scientific for those not having a thorough medical training. The authors are very careful to call attention to all conditions in which an obstetrician should be consulted by the midwife. After giving the diameters of the child's head the methods of external examination are dwelt upon, cautioning the midwife to make internal examinations as seldom as possible.

The complications of pregnancy, delivery, and the puerperium are all briefly considered, so that the midwife may be enabled to recognize some abnormal condition, that she may then without delay summon a physician. The hygiene of pregnancy and the puerperium receive careful consideration. On the whole, we can recommend the work to all interested in this department in the highest terms. BOLDT.

MANUEL THÉORIQUE ET PRATIQUE D'ACCOUCHEMENTS—
Theoretical and Practical Manual of Obstetrics. By ADRIEN POZZI, Professor of the Medical School of Rheims With 138 illustrations. Pp. 464. Paris: Félix Alcan, 1897.

Adrien Pozzi has in this volume given us an excellent text book of obstetrics, covering a great deal of ground and imparting an enormous amount of information. The book is divided into eleven parts, entitled respectively: Symptomatology and General Physiology of Pregnancy and Labor; Clinical and Practical Study of Pregnancy and Labor; Clinical Study of the Different Presentations; Pathology of Pregnancy; Dystocia; Complications of Labor; Extrauterine Pregnancy; Obstetrical Interventions; Pathology of the Puerperium; The Infant; Pathology of the Newly-born. A further subdivision into sections and chapters introduces details too numerous to be here recapitulated, and thoroughly in harmony with the most recent scientific discoveries and methods. The author wastes no words, and shows none of the discursiveness which so frequently mars text books, to the annoyance of the time-pressed student, but tersely and clearly states his facts.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Volumes VII. and X. New York: William Wood & Company, 1896.

Volume VII. begins with a section of one hundred and twenty-six pages devoted to a very good exposition of the Diseases of the Pleura, by Herbert B. Whitney, of Denver. This is followed by chapters on Asthma, by Franz Riegel, of Giesen; Hay Fever, by E. Fletcher Ingalls, of Chicago; Diseases of the Mediastinum and Diaphragm, by E. Main, of Paris; an important and exhaustive chapter on Diseases of the Blood, by Alfred Stengel, of Philadelphia; on Rachitis, by Jules Comby,

of Paris ; on Menstrual Disorders, by Cushing and Cumston, of Boston ; on Functional Disorders of the Male Sexual Organs, by Charles W. Allen, of New York ; and on the Chemical and Microscopical Examination of the Urine, by James M. French, of Cincinnati.

Volume IX. will appear after Volume X., having been delayed by the late receipt of MS. from foreign authors. Volume X., devoted to Diseases of the Nervous System, contains much of special interest. Opening with a chapter on Diseases of the Brain, by Joseph Collins, of New York, it continues with sections on Intracranial Hemorrhage, Embolism, and Thrombosis, by Charles L. Dana, of New York ; Tumors of the Brain, by B. Sachs, of New York ; Diseases of the Meninges, by Collins ; Hysteria, Epilepsy, and the Spasmodic Neuroses, by Charles Féré, of Paris ; Neurasthenia, by Dana ; the Disorders of Speech, by Howell T. Pershing, of Denver ; and the Disorders of Sleep, by Sanger Brown, of Chicago.

THE ANATOMY OF LABOR EXHIBITED IN FROZEN SECTIONS.
By A. H. F. BARBOUR, M.A. B.Sc., M.D., F.R.C.P.E.,
F.R.S.E. Edinburgh and London: W. & A. K. Johnston,
1896.

This work, having now reached a third edition, proves conclusively that it is one of merit. As its name implies, the various stages of labor are illustrated by large plates copied from Nature in frozen subjects. Many of these are in colors, and all are accompanied with an explanatory text. According to the circular, "this edition contains a *précis* of the text accompanying the various sections given in the historical plates of the Atlas, and also a *résumé* of the results of sectional anatomy up to the present year." The work must be of great value for purposes of reference to those interested in obstetrics. X.

THE YEAR BOOK OF TREATMENT FOR 1897. A Critical Review for Practitioners of Medicine and Surgery. Pp. 465.
Philadelphia and New York : Lea Brothers & Co., 1897.

This little book, now in its thirteenth year, presents a carefully sifted *résumé* of the practical work accomplished in medicine during the last year. It is the smallest, the cheapest, and practically the most useful of the "medical annuals."

BRIEF OF CURRENT LITERATURE.

OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY,

IN CHARGE OF THE EDITOR AND DR. JULIUS ROSENBERG.

PEDIATRICS,

IN CHARGE OF DR. A. RAYMOND-SCHROEDER.

OBSTETRICS.

Contributions to the Knowledge of the Placenta and the Maternal Structures entering into the Formation of the Fetal Membranes.—These contributions treat two much-debated obstetrical themata—the direction of placental growth and the cause of placenta previa. Herf¹ attacks the view lately favored by Keilmann, that the reflex placenta forms the origin of the permanent placenta. The author had occasion to make a careful examination of a triplet pregnancy in the fifth month, which consisted of two fetal coverings and placentæ: one of these was a placenta circumvallata. The latter proved to Herf that villi outside the peripheral zone may enter the decidua vera, thus forming an additional placenta—a placenta circumvallata. This is to him sufficient proof that this pars circumvallata can only be explained through a development of the villi into the decidua vera, and from this he concludes that the direction of growth of the placenta in normal and also in pathological conditions may extend into the decidua vera. In the second part of his discourse he deals with the origin of placenta previa, and considers the not yet settled question whether the ovum can implant itself at the level of the os internum. By the older authors this was the theory uniformly accepted. Hofmeier, Kaltenbach, and Keilmann, however, advanced the theory that placenta previa depends upon the extension of a placenta reflexa to and over the internal os. The latter theory Herf attacks and contradicts. The author states that the so-called lower uterine segment, as a distinct anatomical and physiological division, does not exist. The formation of the reflexa occurs by the engrafting of the ovum into the mucous membranes, and this shows conclusively that, while the ovum may fasten itself to either side, it can never locate over the os internum. The results of his investigations are comprised in the following statement: All forms of placenta previa, but especially the placenta previa centralis, depend upon the location and engrafting of the ovum into the uterine wall in the immediate neighborhood of the os internum. The marginal and lateral varieties may arise from an ovum engrafted at a higher level, if the growth of the villi extends toward the cervix.

The Anatomy and Development of the Human Placenta.—An essay of Hofmeier² comprises the result of many years' study and investigation, and must be considered as a most important contribution to our knowledge of embryology. The main objects in view were the epithelium of the chorionic villi, the connection between the fetal and maternal structures, the vascular fetal villi and their relation to the maternal blood vessels. The main results of Hofmeier's investigations are, in brief, the following: 1. Soon after fertilization of the ovule has taken place the so-called syncytium is formed, which facilitates its affixation to the uterine mucous membrane. 2. Chorion and villi already in their earliest stages show a double layer of cells, the syncytium externally and the cell layer of Langhans internally. From these layers originate numerous epithelial projections, which have an intimate relation to the development of the villi, and probably also with the nutrition of the ovum in its earliest stages. 3. The epithelium of the uterus (and of the tubes in tubal pregnancy) at and in the immediate neighborhood of the point of insertion also changes into syncytium, inasmuch as the decidua encapsulates and surrounds the ovum. 4. From the terminations of the villi proliferate the so-called "cell column," which penetrate the syncytial covering, extend into the surface of the decidua, and there form aggregations of large-celled tissue which unite with the decidua. Excessive proliferation of this cell layer upon the decidua, or, in the form of insular cell masses, in the intravillous spaces, are probably of a pathological character. 5. The intravillous space communicates with the maternal vessels as early as the third week. In exceptional cases the maternal vessels are opened by the penetrating villi.

Multiple Pregnancies, Ectopic Gestation, and Anomalism of the Female Generative Organs as seen from an Anthropogenetic Point of View.—The author, Patellani,² attempts to explain the above-named conditions through an abnormal retrograde development, and he uses as a basis of his investigations the well-known biogenetic fundamental law of Haeckel—"the history of development is the true and only guide in investigating organic bodies." Patellani considers these abnormalities as atavistic or "disteleological" phenomena—that is, transitory relapses to conditions which in other animals are the normal state. The author believes that the inherent tendency to attain perfection will in the course of time cause the disappearance of these abnormal conditions. [This essay is of unusual interest. It discloses new vistas, opens new fields for investigation, and fascinates the reader by the masterly way in which the subject is handled. The final conclusions are the result of innumerable examples and investigations, and these facts preclude the possibility of condensing the essay in abstract form.]

Insertion of Placenta on Tumor.—Maygrier³ describes the insertion of a placenta upon a tumor of the uterus, probably a fibroid.

Obstetrics among Aborigines.—In an article upon obstetrics among California Indians, J. C. King⁴ says that menstruation begins with them at 10 to 12 years: during the menstrual or lochial flow they will eat no salt or food containing it. Labor usually lasts one to twelve hours, and takes place in a half-sitting posture, assisted, when difficult, by compression of the fundus by a band of calico or hemp passed around the abdomen and pulled upon from behind.

Asepsis and Antisepsis in Obstetrics.—In a plea for the routine employment of thorough antisepsis in obstetrics, C. E. Skinner⁵ favors post-partum vaginal douches of three per cent creolin three times daily, at intervals of five hours, if we are unable to be absolutely sure of aseptic technique. In a valedictory address before the British Gynecological Society, Clement Godson gives the following statistics of the City of London Lying-in Hospital for the five years 1892 to 1896 inclusive, during which bichloride has been employed, 1:1000 for hands of attendants, 1:2000 for vaginal irrigation: 2,392 deliveries, one death from pulmonary embolism, two from eclampsia, none from sepsis.

The most important mistakes made by midwives are given by C. S. Bacon⁶ as: failure to secure cleanliness of person and surroundings of patient, failure in subjective cleanliness, use of improper lubricants, making unnecessary internal examinations.

Obstetrical Statistics.—The following statistics of the Liverpool Workhouse Hospital for the past two years are given by W. Alexander⁷: Total confinements, 635; married, 221; single, 414; primiparæ, 309. Maternal deaths, 3; none from puerperal troubles, but from associated diseases. Number of children, 646—males, 335; females, 311; twins 11 times. Presentations: head, 623; breech, 11; hand, 2; foot, 8; face, 1; cord, 1. Operations: 21 applications of forceps, 4 versions. Complications: 6 cases of hemorrhage, 1 of tumor of the brain, 1 of adherent placenta, 3 of retained placenta, and 57 where some increase of temperature took place after delivery.

Artificial Dilatation of the Parturient Canal.—J. C. Hoag⁸ has found it advisable to dilate the vagina, in many cases of labor, by a Barnes bag distended with twelve to sixteen ounces of water.

Two cases of protracted labor, in one of which all attempts to induce premature labor failed for six days, until the membranes were ruptured, have led C. Lucas⁹ to construct a cervical dilator. It combines the ideas of Barnes' bags and Champetier's balloon; in shape is like two truncated cones united by their small bases, the uterine surface being concave. It is filled gradually with water by an irrigator, and acts both as a hydrostatic dilator, transmitting the uterine contractions, and mechanically, as do metallic dilators.

Dry Labor.—C. Baum¹⁰ reports a dry labor in which there was no appreciable amount of liquor amnii, yet all the stages of labor were completed within three hours without a laceration.

Delivery with Flat Rachitic Pelvis.—For delivery of the after-coming head in the simple flat rachitic pelvis, V. Bué¹¹ advocates the method of Champetier de Ribes, in which the head is brought down as near one side of the pelvis as possible by carrying the body forward to engage the posterior parietal bone and then backward to engage the anterior. Several cases so treated are reported. J. B. De Lee¹² reports a case of flat rachitic pelvis with prolapse of the cord with the head. It was treated by version and manipulation.

Gastro-hysterotomy and Vaginal Hysterectomy for Contracted Pelvis.—A. Pinard and P. Ségond³ record the successful termination for mother and child of a Cesarean section followed by vaginal hysterectomy for extreme pelvic contraction.

Hysterectomy for Retroflexion of the Gravid Uterus, etc.—H. Varnier and P. Delbet³ describe a case of complete retroflexion of the gravid uterus and pelvic obstruction by a fibroid adherent to the rectum. A total abdominal hysterectomy was done at term, after the death of the child. Recovery followed.

Pregnancy complicated by Fibroids.—A total abdominal hysterectomy done at about the fourth month for uterine fibroids is reported as successful by C. Monoel.³

Use of Forceps.—W. E. Parké⁸ says that forceps is rarely indicated during the first stage of labor, though it may be needed then if the waters have escaped, on account of the increasing exhaustion of mother or child, or for accidents, at any time—notably in certain cases of convulsions, placenta previa, and prolapse of the cord. In the second stage it is proper to apply the forceps one-half hour after the head ceases to advance, when there is no disproportion between the passage and passenger. When, however, there is a tight fit between the child and the birth canal, their use may be delayed, but rarely over two hours after the head ceases to advance. If the head is engaged, and neither advances with a pain nor recedes after the pain, the forceps should be applied promptly.

Forceps Deliveries at the University Hospital in Tuebingen, 1882-1896.—Winternitz.¹³ During the above period 4,280 cases were confined, among which 158 forceps deliveries are noted (3.6 per cent). The high forceps was six times resorted to. In primiparæ the forceps was rarely employed, to avoid the injuries which necessarily (?) accompany this operation.

Abortion.—The treatment of threatened abortion indicated by A. F. Currier⁴⁶ includes absolute rest, use of sedatives, and at times a vaginal tampon to sustain the uterus, though this may excite uterine contractions. In inevitable abortion dilatation of the cervix and emptying of the uterus by finger, placental forceps, or curette, according to circumstances, should be carried out if the fetus has recently died. If long dead and ovum entire, the cervix should be gradually dilated; if the uterus now fails to expel it, forcible dilatation and removal

of the ovum are necessary. This must also be done if the fetus has long been ruptured and retrogressive changes have occurred.

C. E. Purslow¹⁵ records the birth of a fetus with unruptured amniotic sac which showed no trace of chorionic or placental tissue. The entire cord lay within the amnion, having given way at its placental attachment. K. F. M. Sandberg⁸ reviews the etiology and pathology of unintentional abortion.

Tubal Abortion.—J. B. Sutton¹⁶ describes a case which gave the history and physical signs of three hemorrhages from a gravid tube. Abdominal section revealed three large, reniform blood clots lying in the peritoneal cavity. The tube contained a "mole"; its ostium abdominale was widely patent, and the tubal wall thick, succulent, and entire.

Twin Pregnancies.—Statistics show the great frequency of twin pregnancies in Russia (according to Lewin, 1 in 50), while triplets occur once in 4,054 cases. Lewin¹⁶ relates a case in which one woman had given birth to four pairs of twins.

Fetal Death in Twin Pregnancy.—A patient of J. S. Wight¹⁷ gave birth to two dead fetuses of five and seven months respectively. He says that such cases are often called instances of superfetation. He does not believe the latter possible, as he accepts the view that ovulation does not occur during gestation. In this case two amnions, a single chorion, and common placenta exclude the occurrence of superfetation. He believes all cases to be due to the death of one fetus some time before birth.

Non-ligation of the Umbilical Cord.—M. B. Kellar¹⁸ claims that in over two thousand cases of labor he has cut the cord about two and a half inches from the umbilicus, stripped it to remove the Whartonian jelly, and left it to desiccate without ligature or dressing, with good results in all cases, unless the parents were tubercular or syphilitic. He states that ligation of the umbilical cord in the human infant is unnecessary, because the operation is not required at the birth of any other animal; because a necessity for it does not exist, as appears from the formation of the cord and of the structure of its component vessels, and from the numerous cases in which no ligation was applied and yet no fatal bleeding followed; because to ligate for cleanliness is superfluous; because it is unreasonable to attach to the process of reproduction in women so glaring an imperfection as that the birth of a single child cannot be safely completed without a strand of thread upon the umbilical cord. In many cases ligation may be injurious, because it may justly be considered as the cause of secondary hemorrhage from the umbilical cord; because by interfering with desiccation of the cord, and thus preventing its separation, it gives rise to ulceration of the navel and not infrequently erysipelas, fungoid excrescence, etc.; because, by maintaining the funicular vessels in a state of congestion and distension from unnaturally retained blood, it causes the inflammation of those vessels and hinders their normal obliteration, laying the foundation for umbilical phlebitis, erysipelas, jaundice, pyemia,

etc.; because by preventing a normal escape of blood when the cord is divided, and thus causing hepatic hyperemia and congestion of the portal circulation, it may lay the foundation of that innumerable list of fatal infantile affections which so often appear to originate in congestion of the portal vessels. In some, and probably in not a few, the operation of ligating the funis has been directly fatal because numerous cases of death, in which the fatal results were ascribed to ligation, have been recorded by the highest obstetrical authorities; because it can be seen how the operation in the case of still-born children maintains the right ventricle in a state of distension (otherwise relieved by bleeding of the hypogastric arteries), and thus effectually prevents the renewal of the heart's action when it has stopped, or renders the stoppage complete when it is about to cease; because in many instances the removal of the ligature has saved the life of the infant when other remedies had failed.

Obstetrical Paralysis.—Y. Guillemot³ gives descriptions of twelve cases of paralysis of the upper extremity occurring in breech presentations, all delivered by the same midwife, evidently with violent and unreasonable traction upon the arms. In nearly all cases the scapula of the affected side was raised, presumably from injury to the branch of the cervical plexus supplying the lower part of the trapezius, by the lowering of the shoulders and consequent elongation of the neck. That such traction should affect especially the fifth and sixth cervical nerves is explained by the fact that the tissues are least resisting at the level of the third, fourth, and fifth cervical vertebræ, as shown by the occurrence of decapitation at this point when traction is sufficiently strong. He explains the comparative freedom from injury of the sensory nerves by the position of extension in which the head is delivered in breech cases, the posterior nerve roots thus escaping.

G. Fieux³ believes that obstetrical paralysis of the upper extremity is due to extension of the upper two nerves forming the brachial plexus by asynclitic traction of the neck, rather than to compression of Erb's point. He explains his theoretical and experimental reasons for this view.

Ectopic Gestation.—Two cases of ectopic gestation in which rupture of the sac took place in the third week are described by H. Gilford.⁷ Abdominal section was done in one case, with recovery. Another successful case is recorded by S. E. Wyman,¹⁰ and another, removed before rupture occurred, by J. F. W. Ross.²⁰ E. A. Ayers²¹ records an operation for a tubo-abdominal pregnancy at the seventh month. The child died in a few days from inanition, the mother from exhaustion. Cases of ectopic gestation successfully operated upon by the abdominal route are reported by C. F. A. Moss²² and Freeland Barbour.²²

Eiernmann.²³ A woman pregnant about four months had hemorrhages from the genitals of some weeks' duration. When seen pains had existed for a few hours, the os was slightly dilated, some fetal parts had been discharged. After

piecemeal removal of a putrefied fetus the uterine cavity was found to be empty. In the vicinity of the right Fallopian tube, however, a thin-walled, sausage-shaped sac was found, containing the placenta, which with great difficulty was also removed. The woman died of sepsis. A post-mortem examination was not granted.

Eclampsia.—J. N. Upshur²¹ advises the use of morphine in conditions of rigid os and cervix in the first stage of labor, but says it is positively contraindicated if there are symptoms of threatened eclampsia, or in the treatment of the convulsions, as it checks the secretions of the skin and kidneys.

Accidental Hemorrhage.—In an article upon accidental hemorrhage G. L. Brodhead²⁵ gives the histories of four such cases occurring recently at the Sloane Maternity Hospital. Of these one recovered, one died of anemia, and one each of eclampsia and acute nephritis. All the children were dead.

Chronic Nephritis complicating Pregnancy, etc.—L. H. Prince²⁶ records a case of chronic nephritis complicating pregnancy, labor, and the puerperium, with eventual recovery, in great part, of the patient.

Pregnancy complicated by Cardiac Disease.—G. G. Sears²⁷ reports four cases of pregnancy complicated by cardiac disease, one dying, the others delivered safely at term, showing that this complication is not necessarily fatal.

Treatment of Pregnancy and Labor complicated by Uterine Fibroids.—H. D. Fry²⁸ advances two propositions: first, that the production of abortion is unjustifiable; second, that labors presenting serious difficulty are best treated by abdominal section and removal of the child and tumor. By this course the interests of the mother are not relegated to the second place. While it saves the lives of many infants, the maternal mortality will also be diminished. He reports several cases and discusses their treatment.

Deflection and Rotation of the Pregnant and Puerperal Uterus.—R. Milne Murray²⁹ directs attention to the fact that deviation of the post-partum uterus from the mesial plane is the rule, and is most frequently (seventy to eighty per cent) to the right side of the body. He shows that rotation of the uterus in a vertical axis during growth seems a physical necessity of its structure, and believes that its occurrence is supported by clinical evidence. This rotation may offer a mechanical explanation of deviation, which, he shows, is not satisfactorily done by other theories of the causation of lateral obliquity. In the occipito-posterior cases observed the deviation was almost always to the left; in fact, there is an approximate numerical coincidence between the proportion of cases of occipito-posterior and of left lateral obliquity.

Digital Curetting of the Puerperal Uterus.—S. C. Mish³¹ advocates introducing the finger into the puerperal uterus in cases where indications necessitate the establishment of a correct diagnosis or curetting. For the latter the finger possesses many advantages over instruments, as shown by cases cited.

Puerperal Infection.—Fochier's method of treating puerperal infection by the production of superficial abscesses is advocated by R. Robinson³² in prolonged cases which have resisted other methods.

A case of puerperal sepsis, cured by treatment with anti-streptococcus serum, is put on record by S. C. Fowler³³ and another by A. Veitch.³³ The latter employed erysipelas toxins at first, with apparent benefit, and later antistreptococcic serum. A. J. Risher³⁰ also reports a success in the use of Marmorek's serum for diplo-streptococcic puerperal infection.

Puerperal sepsis caused by infection with the bacillus aerogenes capsulatus was observed at the Johns Hopkins Hospital by G. W. Dobbin.³¹ The patient had been in labor two days, attended by a midwife. A constant bubbling, crackling sound and sweetish, offensive odor were noticed, due to the constant escape of gas from the vulva. The child was dead, head impacted in a generally contracted pelvis, and was removed by embryotomy. A large amount of gas then escaped from the uterus. Placenta delivered manually; hot intrauterine douche; traction slow, but little hemorrhage. Patient worse next morning and died that night. Gas detected in the tissues only after death; then emphysematous crepitus and great swelling appeared and rapidly increased. No autopsy. Bacteriological and microscopic examination revealed the bacillus aerogenes capsulatus in the tissues of the fetus and placenta and in the lochia, the diagnosis thus being made before death.

Prochownick³⁴ demonstrated a puerperal uterus containing numerous myomata, which was removed on account of extreme puerperal sepsis. The patient's surroundings were of the worst kind and the operation was performed under great difficulties. The possibility, however, that the sepsis was localized indicated the operation. The subsequent course was very favorable; peritonitis did not appear, and the cicatrization of the stump proceeded normally. Three weeks after the operation symptoms of pyemia appeared. [The report does not state the final termination of the case, but apparently the woman recovered. A more detailed report is promised.]

Inversion of the Uterus.—A Vpara, æt. 22 years, was delivered by a midwife a few months before coming to Henry-tay³⁵ for treatment. The confinement was stated to have been normal. Four weeks later she began to flow with increasing severity. The patient was very anemic, the face having a wax like pallor. A vaginal examination showed a tumor projecting through the external os; its surface had all the characteristics of uterine mucous membrane. The diagnosis of inversion of the uterus having been made, reposition was attempted, which, however, was not successful. Vaginal hysterectomy was therefore performed; the patient recovered. On account of the woman's youth the possibility of replacing the uterus after laparotomy was considered, but, recognizing that this would almost certainly fail, the attempt was not made.

An acute inversion of the uterus, caused by traction upon

the umbilical cord, was observed by D. J. Brown.³⁶ Through an abdominal incision the cervix was dilated and the inversion reduced successfully. In a case reported by Marx³⁷ the patient aborted at the sixth month and caused inversion of the uterus by traction upon the cord. Sepsis followed, and death after hysterectomy.

Rupture of the Uterus.—J. H. Schall³⁸ reports a case in which slight rupture of the uterus had followed an instrumental delivery after protracted labor. The edges of the rent were trimmed and united with catgut. An inflamed vermiform appendix was also removed. Recovery.

Air Embolism.—Jay Perkins³⁷ gives a report of two cases of death from air embolism caused by attempts at criminal abortion, observed by W. H. Palmer. He also describes a number of experiments with dogs to show that if even a large amount of air enters the veins slowly the circulation may dispose of it, but if introduced suddenly a much smaller amount proves fatal.

Sudden Deaths of Puerperal and Pregnant Women.—Zweifel³⁶ adds a new condition to the recognized causes of sudden death during the gravid and puerperal state. He reports the case of a multipara, æt. 29 years, in which chills and fever formed the indications for craniotomy. On the third day the woman became jaundiced, and uterine hemorrhages appeared on the ninth and tenth days without discoverable cause; death occurred on the eleventh day without any premonition. At first pulmonary embolism was considered to be the cause of death. A post-mortem, however, led to the exclusion of the heart and lungs. The kidneys showing the lesions of subacute nephritis, Zweifel concludes that uremia acutissima was responsible for the fatal issue. A similar case is not found in the literature, and if Zweifel's diagnosis is correct a new cause has been discovered for sudden death in the puerperium.

Agalactia.—A case of complete absence of milk secretion in a parturient woman is recorded by J. I. Edgerton.³⁹ The breasts appeared normal. Her mother and sister had been similarly affected.

Peculiar Temperature in a Parturient.—A patient of R. Wilson⁴⁰ did well for eight days after delivery. The temperature then rose suddenly, reaching $104\frac{2}{5}^{\circ}$ the next day. There were no rigors; no streptococci were found by bacteriological examination; the sharp curette showed a healthy uterus. The high temperature persisted, then dropped by crisis in forty-eight hours to subnormal and remained for twenty-six days $1\frac{1}{5}^{\circ}$ to 1° below normal. He believes the temperature was nervous in origin rather than due to septic intoxication or the great heat of the season.

Puerperal Neuritis.—Woman 30 years of age. After the birth of her first child, practically uncomplicated, she suffered pain and numbness over the flexor surface of the left forearm, and weakness of the flexor muscles of the same side soon followed. After the second labor the symptoms became more

intense; and after the third, still worse, while the right arm then was similarly affected. Four years after the onset of the neuritis the hands could not be raised to the head, flexion of the fingers was almost impossible, nerve trunks were not tender upon pressure, sensation only slightly diminished in the flexor surfaces of the forearms, thenar and hypothenar eminences were flattened, and the interossei atrophied. J. H. W. Rhein⁴¹ thinks the cause existed in some morbid blood condition peculiar to the puerperal state.

Symphyseotomy.—The annual report of symphyseotomy at the Baudelocque Clinic from December 7th, 1895, to December 7th, 1896, by A. Pinard,³ may be summarized as follows: 95 cases of deformed pelvis with 2 deaths; 82 children were saved, 13 died. Of these 4 were macerated; 4 died several days after birth, 5 before or during labor; 68 deliveries were spontaneous, with death of 4 children. The results to the children in the 27 artificial labors were: 14 symphyseotomies, 4 deaths; 2 Cesarean sections with utero-ovarian amputation, and 1 version, no deaths; 6 forceps cases, 1 death; 3 basiotripsies and 1 embryotomy on dead children. Symphyseotomy was done 7 times in primiparæ and 7 in multiparæ, the child presenting in all cases at the brim by the vertex. The operation was done 13 times for rachitic pelvis, once for rachitic pelvis with luxation of hip joint. In 13 of the cases forceps was used after division of the symphysis; in 1, version. Results: 12 living, 2 dead women; 10 living, 4 dead children, 2 of these subsequently from broncho-pneumonia. He claims perfect union in all cases; 5 women in whom symphyseotomy was previously performed were this time delivered spontaneously.

The report of a symphyseotomy in a rachitic pelvis with a diagonal conjugate of eight and a half centimetres is given by G. Fieux.⁹⁷ It was successful for mother and child.

Porro Operation.—A woman was brought to the hospital, seven days post partum, in a condition of sepsis. The child had presented by the breech, and the attending midwife, during the process of extraction, had torn the body from the head. The latter and the placenta were still in the uterus. Lessin⁴² removed the uterus *in toto*; the woman recovered.

Keeling⁹⁸ relates a successful Porro operation. Labor occurred at term, but the os externum was found occluded, represented only by a slight depression. In attempting to open the cervix with a sound the peritoneal cavity was entered, and the Porro operation was then performed. The woman had given birth to a child eighteen months before.

Porro Operation for Uncontrollable Hemorrhage.—A Ilpara æt. 30 had lost a large amount of blood after both confinements, which were otherwise normal. In her last confinement she left the bed seven days post partum while the lochial discharge was still bloody. On the fifteenth day she lifted an empty barrel, whereupon she had a large vaginal hemorrhage. This repeated itself twice on subsequent attempts at lifting, the last of which occurred six weeks post partum. When seen by

Taendler⁴³ she was intensely exsanguinated, with a rapid, feeble pulse. The uterus was midway between symphysis and pubes, appearing elastic and fluctuating. The internal os was closed. Suspecting retained secundines, the os internum was dilated and the cavum uteri explored. The uterus contained a large quantity of blood (three hundred grammes), and its anterior wall was the seat of one large and numerous small placental polypi. These were removed under due precautions, but severe hemorrhage followed which resisted all known means of arrest. As a *dernier ressort* the uterus was removed after the usual method, and the woman recovered. A lobar pneumonia interrupted reconvalescence. The anatomical examination of the uterus demonstrated the existence of endometritis decidua and chronic metritis. [The history of this case reminds one very forcibly of deciduoma malignum.]

Decidua-like Growths upon the Ovaries and Peritoneum during Intrauterine Pregnancy.—Schmorl²³ found these growths, which were formerly considered pathognomonic of ectopic gestation, in more than thirty cases of intrauterine pregnancy. Their location is most frequently the excavatio retro-uterina and the ovaries. They form small glandiform excrescences, often resembling tubercular formations. These are situated under the endothelium of the peritoneum and the germ epithelium of the ovaries. Their origin is probably the connective-tissue cells. As early as the fifth month their presence could be demonstrated. They are present only during pregnancy and disappear with involution.

Removal of a Pregnant Uterus with Intraligamentous Papilloma of the Left Ovary.—Prochownick³⁴ The woman was about six weeks pregnant, and the ovarian tumor was the size of a man's head. Chronic peritonitis, resulting in numerous intestinal adhesions, was present, and the parietal and visceral peritoneum was the seat of papillomata. The right ovary had also undergone papillomatous changes. Marked ascites. After feeling well for a few days intestinal paralysis appeared. On the fifteenth day after operation an artificial anus was made, with temporary improvement. A coil of the jejunum, however, had been opened, and death occurred seven days later from exhaustion.

Antisepsis in Labor.—In a clinical lecture upon infection following labor, D. Lewis⁹⁵ advocates the use of one preliminary antiseptic vaginal douche in cases of labor without internal examination, or with only one vaginal examination, this having preferably been made at the eighth month.

Albuminuria of Pregnancy.—In discussing the subject of albuminuria of pregnancy, T. C. Allbut⁹⁶ favors the theory that a circulating toxin is formed in all pregnancies. He believes that the relative immunity of multiparæ is gained during the first pregnancy, as protection is established in a first attack of many infectious diseases.

Severe albuminuria with uncontrollable vomiting in a woman

one and a half months pregnant is reported by Auvar and Daniel.⁹⁷ By means of the galvanic current, with the positive pole between the heads of the sterno-mastoid, the negative over the epigastrium, some food was retained. Eclampsia having begun, abortion was produced and recovery was immediate.

Eclampsia.—In an excellent article upon the pathogenesis and treatment of eclampsia, V. Bué⁹⁷ discusses the various theories of the etiology of this affection, and expresses his belief that it is the result of auto-intoxication connected with pregnancy, aided by irritability of the nervous system. In the prophylactic treatment Bué advises milk diet, intestinal antiseptics, warm baths, inhalations of oxygen to increase oxidation of the toxic substances in the blood, and chloral for nervous symptoms. If the symptoms are severe, drastic purgatives should also be used, and if life is threatened labor should be induced. In the actual eclamptic seizure he adds to the above measures bleeding, subcutaneous saline injections, and chloroform inhalation; but thinks that none of these should be employed exclusively. He adds these statistics of the Obstetrical Clinic of Lille from January 1st, 1887, to November 20th, 1896: In 5,822 labors 17 cases of eclampsia occurred, with a maternal mortality of 3 (17.7 per cent). These included 15 primiparæ, 1 IIpara who had had eclampsia after her first labor, and 1 VIIpara. The attack occurred in 5 cases during pregnancy, in 7 during labor, in 5 after delivery. Of the 18 children, 6 were still-born (35 per cent). Labor occurred spontaneously 11 times, version was done once; forceps was used in 5 cases, aided in 1 by craniotomy. Labor was induced once; death followed.

Quadruplets.—A IIIpara attended by E. T. Goode⁹⁸ gave birth to four dead children at the fifth or sixth month. There were three distinct placentas, four cords; the presentations were vertex, footling, and two vertexes.

Breech Presentations.—H. Spencer⁹⁸ advocates abdominal examination of all patients at the seventh month of pregnancy, and the treatment of breech presentations by external version at seven and a half months, followed by the wearing of an abdominal belt.

GYNECOLOGY AND ABDOMINAL SURGERY.

Myxoma of the Labium Majus.—A woman, while dancing, suddenly experienced a pain in the left side of the vulva. A tumor gradually appeared at this location, which was diagnosed as lipoma or hydrocele. Graefe⁴⁴ removed the tumor, which was the size of a man's fist and appeared to consist of numerous cysts. The microscope showed it to be a pure myxoma. Remnants of connective tissue at the periphery and in the neighborhood of the blood vessels make it likely that the tumor originally was a fibroma.

Atresia of the Vagina.—D. Popoff³ places on record a case of acquired atresia of the upper portion of the vagina and probable stenosis of the lower part of the cervical canal in a patient 45 years old, due to the elimination of a tumor by a suppurative process.

In a case of imperforate hymen in a patient 18 years old, observed by H. P. Esmond-White,⁴⁵ the retained menses formed a tumor reaching nearly to the costal arch. A case of atresia of the vagina recorded by R. J. Wilson,³⁷ in which the hematometra was evacuated by incision of the occluding band, complained of faintness after the operation and had a temperature of 100° F. and pulse 118. No other unfavorable symptoms were noted, although the evacuation appears to have been done rapidly.

Dissecting Phlegmonous Perivaginitis.—A case of this rare affection was observed by Weber.³ The patient, when admitted, was in the typhoid state. On the eighth day the vagina and cervix sloughed off en masse and recovery rapidly followed, menstruation occurring normally through a contracted vagina.

Laceration of the Vagina during Coitus.—Sizinsky.⁴⁶ A healthy, strong multipara performed the sexual act in a half-sitting posture, and this was followed by a severe hemorrhage from the vagina. An examination showed a tear through Douglas' cul-de-sac and on either side of the fornix vaginae. Seven sutures were required to unite the tear, which healed per primam.

Technique of Hot Vaginal Douches.—Patients frequently object to hot vaginal douches on account of the pain in external genitals, caused by the outflowing hot water. Baumgärtner²³ avoids this by introducing the vaginal mouthpiece through a hard-rubber speculum, which protects the external genitals.

Etiology of Colpohyperplasia Cystica.—Eisenlohe has drawn attention to the probability that the gaseous contents of the vesicles were due to the action of bacteria. This is confirmed by the investigations of Lindenthal.⁴⁷ In a woman who perished from purulent peritonitis he found as the cause of the vaginal emphysema an anaerobic gas producing bacillus. This organism is found in the lymph spaces of the vagina, which become dilated until they finally assume the shape and character of cysts. A number of experiments confirm the specificity of the bacillus emphysematus vaginae.

Inflammations of the Uterus.—The imperfections of the etiological, pathological, and anatomical classifications of inflammations of the uterus are pointed out by E. C. Dudley,⁴⁸ who considers their division into acute and chronic processes as the essential point. He further calls attention to the fact that the presence of circumuterine inflammation is not proof of its uterine origin, as the infection may originate in the intestines, bladder, or perineum, or the appendages may become inflamed as a sequel of the acute infectious diseases. In these ways the

uterine inflammation may be secondary to that of the surrounding structures. C. S. Bacon favors an etiological classification, and divides uterine inflammations into two groups. The first contains those due to microbic invasion, or, as he terms it, infectious disease; as the other inflammations vary in etiology, he employs a pathological classification into hypertrophies and hyperplasias, atrophies and aplasias. He presents in outline a scheme of diagnosis in accordance with this classification. In regard to prognosis, J. T. Binkley, Jr., says that, if uncomplicated, uterine inflammation is not dangerous to life and will usually yield to treatment. Some of the most obstinate cases recover after the menopause. Endometritis undoubtedly predisposes to malignant disease. T. J. Watkins classifies endometritis as acute septic, acute gonorrheal, chronic catarrhal, chronic septic, and chronic gonorrheal. For the acute septic form he advises antiseptic irrigation followed by removal of placental tissue or membranes by the finger, placental forceps, or dull curette. He objects to the sharp curette. A second antiseptic irrigation follows, and gauze or tubular drainage according to circumstances. Daily intrauterine irrigation is necessary if suppuration or necrotic tissue persists, otherwise vaginal douches. For acute gonorrheal endometritis, where the discharge is slight, intrauterine treatment is not advisable, on account of the danger of producing mixed infection. The treatment of the chronic catarrhal form includes that of the cause, constitutional pelvic disease, or local disturbance. When glandular hypertrophy exists thorough curettage, irrigation, and drainage is best. Chronic septic endometritis demands the use of the sharp curette followed by a mild caustic or active antiseptic, antiseptic gauze packing changed not less frequently than every two or three days. Antiseptic intrauterine irrigation should be continued daily, if there is a discharge of pus, until this ceases. Recurrence of a muco-purulent discharge to any extent demands a second curettage. Chronic gonorrheal endometritis is usually a mixed infection, so is to be treated as is the chronic septic form.

S. E. Sheldon⁴⁹ says that the treatment of senile endometritis should be mild and antiseptic. The sharp curette, caustics, and cautery should never be used. He strongly advocates the use of iodoform applications.

Retroversion of the Uterus.—F. H. Martin²⁶ says that twenty per cent of retroversion without adhesions can be cured without operation. A small percentage with adhesions can be cured by massage, electricity, and depletion. Retroversion with unyielding adhesions should be freed through the Douglas cul de sac and the round ligaments shortened at the same operation. Retroversion with diseased appendages should be treated through an abdominal incision and the uterus suspended on the urachus or a ligament constructed of peritoneum. When the Alexander operation is performed the ligaments should be secured without a permanent buried suture, by tying the two ligaments together in a hard knot over the pubes beneath the integument.

Ectropion of the Cervix.—C. P. Noble⁸ reports two cases of ectropion of the cervix in multiparæ, resembling laceration of the cervix. The medico-legal importance of such a case in connection with the diagnosis of previous pregnancy is obvious.

Carcinoma of the Cervix.—In an article upon this subject S. H. Linn⁵⁰ states his belief that cancer is a contagious disease, capable of inoculation by finger scratches or even inflamed throats. He advises all physicians treating such cases to wear a mouth and nose mask.

P. F. Mundé²¹ reports the removal of an epithelioma of the cervix by high excision with the thermocautery.

Cancer of the Uterus.—A successful vaginal hysterectomy for cancer of the uterus is recorded by F. D. Summers,⁵¹ and an abdominal hysterectomy with recovery by J. M. Withrow.⁵²

Uterine Fibroids.—In discussing the subject of glandular elements in fibromyomata, F. Leguen and Marien³ conclude that they arise by proliferation of the mucous membrane, and that their evolution explains the development of cysts with epithelial lining which have been observed in fibroids, and also clears up the disputed question of the transformation of these tumors into carcinomata.

In a patient of A. R. Small⁵² a submucous fibroid sloughed, leaving a cavity four inches in diameter in the uterine wall, so damaging it as to necessitate vaginal hysterectomy. Recovery. E. W. Bullard⁵³ reports a successful abdominal hysterectomy for uterine fibroid. A similar operation by M. A. Crockett⁵⁴ is described as an instance of the growth of a fibroid not prevented by electricity or the menopause.

In a case of uterine fibroids, previously reported, in which one uterine artery was tied by A. H. Goelet,⁵ the tumor has diminished greatly in size. In a new case both arteries were ligated through lateral vaginal incisions, and the tumor disappeared entirely in three and one-half months, though formerly filling the pelvis and reaching the umbilicus. The arteries were ligated in two places and divided between, to assure obliteration.

G. E. Shoemaker⁵⁵ favors operation for fibroids when, occurring during pregnancy, they may obstruct labor; when salpingitis is present, or moderate but constant bleeding; or when pain or great size demands it.

Sneguiroff's¹³ experience with the vaginal method of myomotomy is limited, because in most cases which came to him for operative relief the tumor had assumed too large a size to permit its removal through the vagina. Of eighty-three cases for which he performed abdominal hysterectomy in a period of two and one-half years, he lost four, one perishing from pulmonary embolism. He lays great stress upon rapid work and the utmost restriction of the loss of blood.

Transitory Superinvolution of the Uterus.—McCann¹⁵ believes that cases of early menopause may be confounded with transitory superinvolution of the uterus associated with amen-

orrhoea and climacteric symptoms. He describes a case where a patient, aged 32 years, having nursed her child for eight months, had a period of complete amenorrhoea for fourteen months after the cessation of lactation. She complained of marked flushings and other disturbances associated with the menopause. The uterus was small and the upper portion of the vagina contracted. Six months later menstruation returned with increased size of the uterus, and the patient continued to menstruate regularly. She was not anemic.

Double Uterus and Vagina.—A well-marked case of this deformity is described by F. A. Jones.⁶⁴

Retention of Menstrual Fluid in One Half of a Double Uterus.—A patient of J. L. Lackie,⁶⁵ age 24, unmarried, had menstruated regularly since the age of 16, but complained of a hemorrhagic discharge coming on every four weeks and lasting three weeks, and an acute exacerbation of pain and sense of impending menstruation between each two menstrual periods. Examination showed regular menstruation from the right half of a uterus septus, and intermittent, recurrent hematometra in the other. After opening the latter she menstruated every two weeks alternately from each half of the uterus.

Ventrosuspension of the Uterus.—J. C. Irish⁶⁷ prefers ventrosuspension in women of child-bearing age, in those of 65 or older, and in ordinary cases of complete prolapse. If recurrence takes place hysterectomy can be done. In cases where the uterus has become greatly enlarged or much changed structurally from long-continued exposure, hysterectomy will give the best results.

Treatment of Genital Prolapse.—P. Petit³ advocates for this purpose restoration of the vagina and perineum, with Alexander's operation added when marked retroversion also exists. Hysterectomy is admissible only for irreducible prolapse or for fibroids or cancer.

Prolapse of the Rectum following Operation for Complete Prolapse of the Uterus.—A primipara æt. 48 years had a complete prolapsus uteri et vaginæ with recto- and cystocele. This was treated and cured by colporrhaphy and ventrofixation. Shortly after this there appeared a prolapse of the rectum, which constantly increased in dimensions and finally measured fourteen centimetres. Bandages and massage failed to give any relief. Westphal⁶⁸ therefore decided to resect the prolapse, and effected a permanent cure.

Alexander's Operation.—An improved technique will obviate all objections to this operation. Calman⁶⁸ lays great stress upon the fixation sutures to prevent the possibility of subsequent hernia. These sutures must be placed in the longitudinal direction of the ligament in conformity with the direction of its fibres, and should include the pillars of the abdominal ring.

Intrauterine Therapy.—Bröse, Dührssen, Säger.¹³ These articles are written in response to a paper by Hofmeier (abstract in February number of THE AMERICAN JOURNAL OF

OBSTETRICS), who reported a fatal case of peritonitis (?) following an intrauterine injection of a fifty per cent solution of zinc chloride. Bröse condemns most emphatically intrauterine injections of zinc chloride in any strength, but doubts that peritonitis was the cause of death in Hofmeier's case, he believing that death was due to toxic action of the zinc solution. Bröse employs electrolysis in the after-treatment of curettement for hemorrhagic endometritis. In catarrhal endometritis he advises zinc applications with Playfair's applicators. This treatment should extend to the body of the uterus only if a diseased condition of the mucosa of the body is positively diagnosed. In most cases cauterization of the cervix suffices for the cure of cervical catarrh and the existing fluor albus. Dührssen denies that he recommended the injection of fifty per cent zinc solutions. He never employs them, but uses applications by means of Playfair's instrument. Uterine colics may be avoided by tamponing the uterus with iodoform gauze on the day preceding the zinc application. Säger also condemns chloride of zinc injections, which he considers as objectionable as zinc pencils. Neither peritonitis nor zinc intoxication was the cause of death in Hofmeier's case; he ascribes it to shock. He uses a fifty per cent solution of zinc in the after-treatment of curettement: this is applied by means of a silver sound, but only in the hospital or the patient's home, never in dispensary or office practice. Even with these precautions he has observed attacks of syncope.

Ovarian Fluid.—W. Moser⁵⁹ considers that no one kind of cell is pathognomonic of fluid from an ovarian cyst. He places most reliance, in diagnosis, upon the large number of colloid bodies and cholesterin crystals, large, flat, fatty epithelial cells, smaller flat cells, ciliated epithelial cells, and Gluge's corpuscles.

Ovarian Tumors.—H. Dervaux⁶⁰ records the removal by Duret of a fibrocystic ovarian tumor which had been diagnosed as a uterine fibroid. A successful ovariectomy by the same surgeon for multilocular cysts of both ovaries is also described by Schotte. J. A. Gage⁶¹ reports the successful removal of a ruptured ovarian dermoid. J. H. Croom⁶² relates a number of interesting cases of abdominal tumors. Among those reported are an ovarian tumor adherent to the anterior abdominal wall above the umbilicus and having a pedicle ten inches long, an ovarian cyst in Douglas' pouch and with absolutely no attachments, a similar case of hematosalpinx, and a free ovarian tumor with a twisted pedicle whose pelvic attachment could not be found. A. Doran⁶³ records successful operations by the abdominal route for suppurating ovarian dermoid and for pyosalpinx. A successful double ovariectomy and hysterectomy is noted by O. J. Pfeiffer.³⁶ M. A. Young⁶³ reports a case in which acute intestinal obstruction of ten days' duration, caused by a dermoid cyst, was relieved by aspiration of the tumor. An indirect inguinal hernia of a sarcomatous ovary in a woman 48 years of age is described by G. Seymour.⁶⁴ A. H.

Goelet⁶ records the removal of a simple cyst of one ovary and a dermoid of the other, by vaginal section; recovery; also the successful removal by the abdominal route of a large parovarian cyst attached to the uterus and intestines by dense adhesions. Camelot⁶⁵ describes an ovarian dermoid whose cyst had undergone torsion, and which obtained its nourishment from the broad ligament, to whose anterior surface it was adherent.

Bacillus Proteus Zenkeri in Ovarian Abscess.—Hunter Robb and A. A. Ghriskey⁶⁶ give an elaborate report of a case of ovarian abscess, probably a sequel to infection of the endometrium after abortion, involving later the tube and ovary. The bacillus proteus Zenkeri was found in the pus, which had a strong fetid odor.

Removal of Tubo-ovarian Abscess, etc., by Enucleation.—J. C. Stinson³⁷ gives a report of the removal of a tubo-ovarian abscess and ovarian cyst and tube by enucleation without ligature, clamp, or cautery. He advocates enucleation as the simplest and safest method for the removal of a pyosalpinx, tubo-ovarian abscess, uterine, ovarian, or other cyst or tumor, etc., even when extensive adhesions are present. Vessels which are severed can be at once caught and ligated individually; a pedicle should not be tied en masse. When a tube is removed it should be dissected back to the uterus and the wound closed by a circular flap of peritoneum taken from the tube; the edges of the broad ligament also being united by a continuous suture. A uterus, in good position and not irreparably damaged, should not be removed with the appendages. When enucleation with ligation of vessels only is very difficult, temporary clamps may be applied to the pedicle after enucleation and used as tractors; the pedicle divided, arteries ligatured, and the stump covered by peritoneum.

Removal of Ovaries in Insanity.—F. Blaisdell⁶⁷ contributes the report of a case of acute mania in which the normal mental condition was restored after removal of both cystic ovaries and one tube.

Conservative Surgery upon the Uterine Appendages.—Full reports of a number of such cases are given by A. P. Dudley.⁸ Of his sixty-five cases, pregnancy has followed in ten of those which he has been able to watch.

Abdominal Operations.—F. W. Johnson's⁶¹ method of removing the tubes and ovaries is as follows: The ovarian artery on one side is tied with a single strand of small catgut; the broad ligament is cut with scissors, below and parallel to the ovary and tube, up to the horn of the uterus. Each artery is clamped as cut, or the arteries supplying the ovary and tube are tied in the broad ligament with fine catgut, below where the ligament is to be divided. The tube and ovary are removed after ligating the tube at the uterine horn with fine catgut, the uterine peritoneum being brought over the cut end of the tube, thus making it extraperitoneal. The cut edges of the broad ligament are then sewed together with an over-and-over suture of catgut from the ovarian artery up to the uterus. By this

method there is no puckering of the broad ligament, no pain from pressure of nerve by ligatures, no danger of hemorrhage, and, as all raw surfaces are turned in, diminished liability to sepsis and to the formation of adhesions. For drainage he prefers a large glass tube with no holes in the side. He says that if non-sterile pus or septic fluid escapes into the peritoneal cavity, irrigation, no matter how practised, does little except increase the chances of septic peritonitis and death by disseminating the poisonous material among the intestines. He claims that all blood in the peritoneal cavity should be carefully removed from the peritoneal cavity as far as safety and time will permit, as blood after being in contact with the air is no longer sterile. For the sterilization of catgut he has devised the following method: Each length is coiled up, done up in waxed paper, and put in an envelope, which is sealed. The sealed envelopes are put in a dry oven and baked for one hour at a temperature of 100° C. This removes all the moisture, and thus prevents further heating making the gut brittle. On the following day the sealed envelopes are baked three hours at a temperature of 140° C. The envelopes are kept in a glass jar, and when needed can be opened by an assistant, no one but the operator touching the ligature before it is applied.

Nodular Forms of Salpingitis.—Emil Ries⁶⁸ reaches the following conclusions in a paper upon this subject: Nodular enlargement of the tube can be caused by a number of different pathologic conditions. Clinical examination does not enable us to make a diagnosis of these in an individual case. The diagnosis of the nature of a tubal nodule can be made only with the microscope. The conditions causing nodular enlargement of the tube are congenital or acquired, non-inflammatory or inflammatory. Each of these conditions can exist without the production of nodules. The nodules can be found in all parts of the tube, and, taking the peculiar anatomy of each part of the tube into account, show the same structure. The enlargement can be caused by epithelial or epithelioid formations, connective or muscular tissue, or round-cell infiltrations, or combinations of two or more of these. The epithelial formations originate in the epithelium of (a) the tubal mucous membrane (salpingitis pseudo-follicularis, adenomyoma originating in the tubal epithelium); (b) the accessory tubes (intraparietal parasalpinx and hydroparasalpinx); (c) remnants of the Wolffian body (adenomyoma). The epithelioid formations originate in the peritoneal epithelium (peritoneal growths under "relative heteropy"). The excess of formation of connective tissue is a consequence of inflammatory conditions of the tubal wall (salpingitis interstitialis, Zweifel). The hypertrophy of the muscular tissue is (a) non-inflammatory (adenomyoma); (b) consequence of inflammation, Kaltenbach's case. The accumulations of round cells a direct evidence of inflammation: (a) non-specific (salpingitis interstitialis disseminata, salpingitis abscedens) or (b) specific (salpingitis tuberculosa or salpingitis gonorrhoeica). The epithelioid formations can occur whenever pseudo-membranes

cover organs lined with a serous coat. Extrauterine pregnancy (abdominal or tubal) produces epithelioid formations by causing pseudo-membranes to form, not by any irritation peculiar to the pregnancy.

Nephro-ureterectomy.—J. W. Elliot,⁶⁹ in reporting the successful retroperitoneal extirpation of a diseased kidney and ureter by a long lumbar incision, shows a marked increase in the amount of urea excreted after the operation as compared with the combined excretions of the two kidneys before it. He believes that one good kidney works better alone than when combined with another which is diseased, and suggests that perhaps the diseased organ, by reflex irritation, prevents the other kidney from hypertrophying, as it can and does as soon as the disease is removed.

Uretero-ureteral Anastomosis.—J. W. Bovée⁷⁰ considers uretero-ureteral anastomosis perfectly feasible, and, when possible, far preferable to any other form of ureteral grafting, nephrectomy, or ligation of the ureter. Lateral implantation or oblique end-to-end anastomosis is preferred by him, though the transverse end-to-end and the end-in-end methods are considered safe. Constrictions of the calibre of the ureter do not usually follow attempts at suturing in closure of complete transverse section of the duct. Nephrectomy for transverse injuries of the ureter is unjustifiable, and simple ligation of the ureter to produce extinction of the function of the kidney is too uncertain to justify its practice. Drainage is not necessary after uretero-ureteral anastomosis if the wound be perfectly closed and the tissues throughout are aseptic.

Injury to Ureter during Operation.—C. P. Noble⁷¹ records the injury of a ureter during an operation for neglected extrauterine pregnancy complicated with an intraligamentous ovarian tumor. As the ureter was divided high up as well as near its lower end, it was necessary to remove the kidney.

After incising a retrouterine hematocoele through the posterior fornix, P. F. Mundé⁷² discovered, on its right, a firmly adherent mass, which he enucleated with the finger. It proved to be the ovary and tube. At the same time the vermiform appendix, and a free strand about three inches long and taken for the Fallopian tube, appeared. The appendix was ligated. The free strand was subsequently shown to be a portion of the ureter, which had probably been firmly adherent to the ectopic sac and so was torn in the enucleation of the tumor.

Vesico-vaginal Fistula.—Berger³ reports a success in closing a vesico-vaginal fistula complicated by cicatricial obliteration of the upper part of the urethra.

Utero-ovarian Varicocele.—A marked case of utero-ovarian varicocele is described by H. Herbert,³ who ascribes it to an old uterine phlebitis.

Pelvic Pains.—J. C. Webster⁷³ emphasizes the importance of neuropathic conditions in the causation of pelvic pains, and the necessity for diverting the patient's attention from the pelvic troubles as well as employing local and tonic treatment.

Pelvic Hematoma.—W. Gardner⁷² places on record three cases of pelvic hematoma, the first due to ectopic gestation, the others complicated by adeno-carcinoma of the ovary and tuberculosis of the tube respectively. Recovery in all three cases.

Pelvic Inflammation.—The vaginal incision with drainage is recommended by E. E. Montgomery⁷³ for collections in the pelvis from ruptured tubal gestation and formation of hematocele, for purulent and serous collections in the posterior cul-de-sac.

Purulent Peritonitis.—H. T. Williams⁵⁴ illustrates the advantage of laparotomy and drainage in purulent peritonitis by the report of a case treated successfully in this manner.

Encysted Dropsy of the Peritoneum.—A case of this sort, secondary utero-tubal tuberculosis and infection by pyogenic bacteria, is reported by B. B. Browne.⁷⁴ It was associated with general tuberculosis, and death occurred.

Hydatid Cysts in the Peritoneal Cavity.—R. Farrar⁷⁵ describes a case of numerous hydatid cysts disseminated in the abdominal and pelvic cavities. Though rupture of such a cyst into the peritoneal cavity has been generally supposed to be fatal, he believes that this occurred with the primary cyst, judging from the history and the different stages of development in which the cysts were found. Operation seems to have put a check to the innumerable small cysts that were necessarily left in the abdomen.

In a case recorded by Tissier³ a hydatid cyst of the liver had been treated eighteen years before. Rupture of the uterus occurred during labor, and the abdominal and pelvic cavities were found to contain hydatid cysts.

Aberrant Suprarenal Capsule.—A. H. Pilliet and V. Veau⁷⁶ describe the finding of an aberrant suprarenal capsule between the folds of the broad ligament.

Primary Cancer of Liver simulating Uterine Fibroid.—A. Lapointe⁶¹ describes a pedunculated primary cancer of the liver simulating a fibroid of the uterus. Death occurred three days after removal of the growth.

Differential Diagnosis of Tumors of the Cecum and of the Right Appendages.—Delassus⁷⁷ reports a case in which the symptoms and physical signs indicated a right pyosalpinx. Operation showed a malignant neoplasm of the cecum with enlarged lymphatic glands. The case had given no symptoms of intestinal obstruction or cachexia. He says that masses in the region of the appendages should be mistrusted if too superficial, hard, and without a surrounding plastic exudate.

Polymastia.—W. W. Fullerton⁷⁸ records a case of polymastia in which an accessory breast is situated at the anterior edge and partly within each axilla.

Cancer of the Breast.—L. L. Hill⁷⁹ considers the treatment of this affection by toxin of erysipelas a waste of time, and condemns the use of caustics. H. J. Warmuth⁸⁴ records a successful breast amputation for cancer.

W. Van Hook⁶⁰ records the removal of a carcinomatous breast from a woman 25 years of age.

Cystic Tumors of the Mamma.—Jasse⁶¹ made a careful investigation in Bergmann's clinic. Aside from dermoid, athematous cyst, and those caused by echinococci, the mamma may contain traumatic cysts which are devoid of epithelial lining and glandular structure. Of cysts which have their origin in the glandular tissues those due to retention are the most important. They occur during the period of lactation or may accompany other disease processes—for instance, cancer. The true cysts are divided into two groups: 1. Cysts the causation of which is a chronic interstitial inflammation and distension of the excretory ducts (*mastitis chronica cystica*, König). 1. *Polycystoma mammæ*, multiple cysts formed through a purely epithelial proliferation and cystic dilatation of the acini. These cysts may be found in the healthy portion of the otherwise cancerous gland. *Cysto sarcomata* and *fibro-adenomata* of mamma belong to the cystic tumors of the connective tissue. The epithelial tumors of a benign character are the *cystadenoma intracaniculare* and the *cystadenoma circumscriptum* (tubulare, Billroth), the first from the walls of the excretory ducts, the latter from the final terminations of the glands. Malignant cystic growths are the *cystadenoma proliferum* and *cystocarcinoma*, from which the infectious cells penetrate and enter the lymph spaces.

Obesity as a Cause of Sterility.—J. V. Gaff⁶² describes a few cases to demonstrate that obesity is a frequent cause of amenorrhea and sterility and is often amenable to treatment. The masses of fat around the ovaries prevent the escape of ova, compression of the tubes obstructs their passageway, pressure of the cervix anteflexes the uterus, and the uterine ligaments are unable to aid the passage of semen by contraction during copulation.

Dysmenorrhea.—A. L. Smith,⁶³ in treating of the treatment of dysmenorrhea, sums up his experience as follows: Fifty per cent were cured by therapeutic and hygienic measures, including pregnancy; twenty-five per cent by rapid dilatation and curetting; twelve and a half per cent by electricity, negative pole; five per cent by removal of appendages; seven and a half per cent, being impatient, went to other institutions, where eventually most of them had the appendages removed. Pregnancy may be called Nature's remedy for dysmenorrhea, because it both dilates the uterine canal and gives the ovaries a more or less complete rest.

Thyroid and Ovarian Therapy.—H. B. Stehman⁶⁴ reports several cases which he thinks show that thyroid substance inhibits the pelvic blood supply and thus overcomes menorrhagia. He also believes that internal administration of ovarian substance, by increasing the quantity or improving the quality of ovarian secretion, may produce normal menstruation.

Gonorrhea.—Until recently gonorrheal infection of the vagina was considered impossible, but this is now admitted by

many authors. The presence of gonococci, however, has never been conclusively proven until the present investigation of Mandl.²³ This observer demonstrated their presence in the epithelium and subepithelial connective tissue.

Döderlein²³ reports the case of a young woman in whom, on account of severe inflammatory changes, both the uterus and adnexa were removed by the vaginal route, and who subsequently contracted a gonorrheal infection. The vaginal secretion harbored numerous gonococci. This case should once for all settle the much-debated question as to the presence or absence of gonococci in vaginitis.

Examination of the Genitals.—W. F. Mitchell¹² advocates the use of light reflected from a head mirror in the examination of the rectum and vagina, in order to avoid interference with the light by the head of the observer in front of the patient.

Electricity in Gynecology.—G. B. Massey⁶⁸ urges the advantages of electricity over surgery in treating all cases due to more or less remote inflammatory conditions, not a true abscess, also in fibroids, dysmenorrhea, slight laceration of the cervix, and chronic endometritis.

Diseases of Women.—Writing upon the etiology of diseases peculiar to women, M. J. Smith⁶³ emphasizes the importance of attention to physical training and education at the time of puberty, and of the results of improper dressing, constipation, and criminal abortion.

The Vaginal Route.—Wertheim⁵⁴ extols the advantages of anterior colpotomy, which gives easy access to the uterus and adnexa, facilitates the shortening of the sacro-uterine ligaments and the separation of adhesions. If the abdominal cavity contains fluids which are to be removed posterior colpotomy is advised.

Hermaphroditism.—Menke⁶⁶ reports a very rare case in which the clitoris was enormously enlarged, while otherwise the external and internal genitals were of the normal female type. The specimen was from a child which perished, when 5 weeks old, from cholera infantum. The clitoris was two centimetres long. From its under surface a shallow canal, surrounded by folds of mucous membrane, led to the orificium urethrae. During life round masses were felt in the labia majora, which, however, were found to be fat.

Method of Untying Knots of Silk Ligatures.—H. Grad⁸ describes an ingenious method for the early removal of silk ligatures, particularly in vaginal hysterectomies. Three silk traction loops are employed. The ends of each are knotted together with one, two, and three knots respectively, to indicate the number of the string. A knot is made in one end of the ligature for identification, and the ligature is passed around the stump. Traction loop No. 3 is slipped over the knotted end and the first knot of the ligature—square or surgical—tied. No 2 is slipped over the knotted end and another knot tied, and the same repeated with No. 1. The knotted end of the ligature is cut short and all the traction loops and ligature tied

together and left in place for drainage. To remove the ligature the thread binding the bundle is cut and the last-tied knot undone by slow and steady traction alternately upon the two limbs of traction loop No. 1, until it suddenly comes away. This is repeated with Nos. 2 and 3, and the ligature finally removed by gentle traction upon its long end. An antiseptic douche follows. Has been used in nine hysterectomies successfully.

Abdominal Surgery.—In a report of hospital work in abdominal surgery for the past three years W. G. Wylie⁶⁶ shows a mortality of 4.6 per cent.

Prevention of Thirst after Abdominal Operations.—W. W. Taylor⁶⁷ reports favorable results in four cases of abdominal section in which he employed Clark's method of preventing thirst by giving an enema of one quart of normal salt solution while the patient is still under the anesthetic.

Acetanilid Gauze.—After curetting, irrigating, and cauterizing with chloride of zinc, in inoperable cases of cancer of the uterus, W. E. Ford⁶⁸ packs with acetanilid gauze. This diminishes pain and fetor, acts as a styptic, and can be left in fully as long as iodoform gauze. In cases of cancer or sloughing wounds he does not fear absorption of acetanilid.

Disinfection of the Hands.—The investigations of Fürbringer and Freyhan⁶⁹ confirm as a whole the reports of Ahlfeld regarding the antiseptic action of alcohol. Not only is the action of alcohol directly germicidal, but through its fat-dissolving and water-attracting power it gains for itself an entrance into the tissues and also enhances the action of the succeeding antiseptics. Alcohol loosens the superficial covering of the skin and thus facilitates the removal of the loosened epithelial cells together with the adherent dirt and bacteria. The antiseptic action increases with concentration. Twenty-five per cent alcohol has hardly any germicidal power.

Hot water and alcohol is the most certain method to secure absolute sterility of the examining hand. Ahlfeld⁶⁹ has used with success and advocates fifty per cent alcohol for intrauterine injections in puerperal sepsis.

Sterilization of Catgut.—Schäffer⁶⁹ made control experiments of the investigations of Saul, who claims that anthrax bacilli are killed through boiling for five to seven minutes in a solution of alcohol absolute 85, water 10, carbolic acid 5 parts. He finds Saul's method, which is also advocated by Bergmann, unreliable. Sterilization with oil of juniper and also with Bergmann's solution is absolutely certain if continued for two to three days. The author draws attention to his method of sterilization, which never fails and results in an excellent quality of catgut. He uses alcohol absolute 85, aqua dest. 15, sublimate 0.5. The alcohol must be 99 per cent, otherwise 90 parts of 95 per cent alcohol are to be used.

Relations of Nervous Disorders in Women to Pelvic Disease.—In opening a discussion upon this subject at the College of Physicians of Philadelphia, B. C. Hirst⁷⁰ cites several cases to show that nervous disorders in women are to

be explained usually, not by pre-existing pelvic disease, but by a weakly organized or deranged nervous system. *E. E. Montgomery* calls attention to the fact that patients are often treated for neurotic conditions when real pelvic lesions exist, and urges the importance of examination and gynecological treatment of insane women. *C. P. Noble* says that arrested development is the fundamental cause of many cases of nervous diseases simulating diseases of the sexual organs. *S. Weir Mitchell* has never seen a case in which removal of the ovaries and termination of the menstrual flow cured epilepsy, and he has found oöphorectomy rarely beneficial in hysteria and insanity, even though pelvic disease coexisted. *C. K. Mills* believes that real epilepsy, hysteria, or melancholia has never been caused by pelvic disease, though this may act as an exciting cause in those predisposed. *W. Sinkler* has seen several cases of melancholia recover speedily after some serious accident. *F. X. Dercum* says that cancer of the uterus, in which neurasthenic and hysterical symptoms are absent, shows how little organic disease acts as a factor in causing hysteria, whereas such trivial conditions as laceration of the cervix or perineum are often held responsible for them. So-called ovarian tenderness, he believes, should be one of many hysterical stigmata, and says it should be called inguinal tenderness, as examination usually shows it to be situated in the skin and abdominal wall. He has also seen hysteria greatly benefited by trauma. *J. Tyson* reports several cases to show that when pelvic disease coexists with trouble elsewhere relief of the latter should not be promised as the result of operation for the former. *J. M. Anders* mentions the occurrence of such reflex conditions as tachycardia, palpitation, arrhythmia, intense bronchial irritation, and gastric disturbances, connected with pelvic diseases. *S. Solis-Cohen* and *L. W. Steinbach* report a case of kleptomania in a woman the subject of chronic uterine and rectal disease.

Gout of the Menopause.—Observing the similarity of the symptoms which often appear at the time of the menopause to those present in cases of the so-called neurotic forms of gout. William Armstrong⁹⁹ believes that they are caused by excessive formation and retention of uric acid due to faults connected with nerve disturbances arising from changes in the uterus and ovaries. The treatment which he has found successful is based on this resemblance to gout. He endeavors to eliminate waste products from the blood by the kidneys, liver, and bowels by sipping hot water morning and evening and an hour before meals, and by the skin by giving hot vapor baths. The morbid products in the lymph spaces are dispersed by massage, and the state of the nervous system is improved by electro-massage. Riding, golf, and cycling are advised.

Pathological Examinations during Operations.—In an article on gynecology in Berlin, H. Macnaughton-Jones⁹⁹ describes Ludwig Pick's method of preparing fresh specimens for examination, a Fallopian tube being mounted in his presence within twelve minutes. Frozen sections having been made,

they are transferred by the finger to four per cent aqueous formalin solution for three to four minutes; then by a glass rod to a solution of four per cent carmine and five per cent alum, then washed in water for a few seconds; next left for ten seconds in eighty per cent alcohol; then in absolute alcohol for a few seconds, and finally placed in one part of carbolic acid to three of lysol before mounting in Canada balsam.

Prevention of Conception.—While acknowledging the importance of gonorrheal infection and criminal abortion in the production of invalidism, M. U. O'Sullivan¹⁰⁰ considers prevention of conception the predominant cause of ill health in women. The same evil is referred to by Z. L. Whitmire¹⁰¹ in an article on infant mortality during labor.

Atresia of the Vagina.—Congenital atresia of the vagina causing hematometra and hematosalpinx was operated upon by C. Martin⁹⁹ by supravaginal amputation of the uterus, and removal of tubes and ovaries, the dilated cervix and vagina being drained through the abdominal incision to which the cervix was sutured.

Retrouterine Hematocele.—Reports of two cases of retro-uterine hematocele successfully treated by posterior vaginal incision are given by Camelot.¹⁰²

Phantom Tumor.—A. Donald¹⁰³ is not satisfied that phantom tumor is always of hysterical origin, and divides such cases into those associated with pelvic peritonitis, citing a case secondary to acute inflammation of the tube, ovary, and peritoneum; those associated with the normal climacteric, often due to accumulation of fat, gas in the intestines, and imagined pregnancy; those with a pathological menopause, due to superinvolution from prolonged lactation or ovarian atrophy after pelvic inflammation; cases in young women with amenorrhea and rapid development of fat; purely hysterical cases. Electricity and antispasmodics should be used only in the last class. If any real organic lesion is present it should be treated, if inflammatory, by rest in bed or operation if necessary; if a tumor, by removal. When the symptoms are due to an exaggeration of the troubles incident to the menopause, soda and nux vomica are often of service; and when a patient at this time of life attributes these symptoms to pregnancy she should be persuaded she is mistaken. In young women with amenorrhea and obesity careful diet and regular exercise are sometimes beneficial.

Peritoneum.—Byron Robinson¹⁰⁴ says that the centrum tendineum is the chief place in the peritoneum for the absorption of solid particles. The peritoneum will, during life, absorb 10 per cent of the body weight within an hour. This contraindicates irrigation in abdominal surgery, as it distributes germs and facilitates absorption through the centrum tendineum.

Ligatures in Abdominal Surgery.—W. B. Chase¹⁰⁵ thinks that unabsorbable buried ligatures should be discarded if possible. He draws attention to the fact that if catgut is washed in alcohol and dried at 110° F. for twenty-four hours, then washed in absolute alcohol and dried as before, all water is driven off.

If kept in absolute alcohol, the catgut will, when used as suture material, absorb sufficient moisture to cause it to swell, fill the puncture, and tighten the suture or ligature. Chronicizing the catgut prevents too rapid absorption.

Absence of Uterus and Vagina.—In a case of congenital absence of uterus and vagina in which there had been no menstrual molimen, W. L. Burrage,⁶⁶ formed an artificial vagina, taking flaps from the nymphæ and perineum. After several months of married life she reported sexual intercourse as satisfying to herself and husband, and the vagina was found to be 3 centimetres in diameter and $5\frac{1}{2}$ in depth.

Salpingo-oöphoritis and Appendicitis.—In reporting a successful abdominal operation for salpingo-oöphoritis and appendicitis, P. Michinard¹⁰⁷ expresses his belief that in cases of inflammation of the right uterine appendages it is impossible to be sure that the vermiform appendix is normal, and, if diseased, it may be overlooked and can rarely be removed by the vaginal route.

REFERENCES.

- ¹ Zeit. für Geb. u. Gyn., Bd. xxxv., H. 2. ² Zeit. für Geb. und Gyn., Bd. xxxv., H. 3. ³ Ann. de Gyn., Feb. ⁴ So. Cal. Pract., Feb. ⁵ N. Y. Med. Jour., Jan. 23d. ⁶ Jour. Am. Med. Assn., Feb. 6th. ⁷ Lancet, Feb. 20th. ⁸ Am. Gyn. and Obst. Jour., Feb. ⁹ Jour. de Méd. de Paris, Jan. 31st. ¹⁰ Phil. Polyc., Feb. 27th. ¹¹ Le Nord. méd., Feb. 15th. ¹² Jour. Am. Med. Assn., Feb. 13th. ¹³ Monatschr. für Geb. u. Gyn., Bd. iv., H. 6. ¹⁴ Int. Jour. Surg., Jan. ¹⁵ Lancet, Feb. 12th. ¹⁶ Esbenedelnik, No. 36. ¹⁷ N. Y. Med. Jour., Jan. 16th. ¹⁸ Pac. Med. Jour., Jan. ¹⁹ Bost. M. and S. Jour., Feb. 18th. ²⁰ Canad. Pract., Feb. ²¹ Med. Rec., Jan. 23d. ²² Lancet, Jan. 23d. ²³ Monatschr. f. Geb. u. Gyn., Bd. v., H. 1. ²⁴ Gail. Med. Jour., Feb. ²⁵ Med. Rec., Feb. 27th. ²⁶ Jour. Am. Med. Assn., Feb. 20th. ²⁷ Bost. Med. and Surg. Jour., Feb. 25th. ²⁸ Am. Jour. Surg. and Gyn., Jan. ²⁹ Ed. Med. Rev., Feb. ³⁰ Ther. Gaz., Feb. 15th. ³¹ Pac. Med. Jour., Feb. ³² Traitement de l'Infection puerpérale par la Méthode de Fochier; Henri Grave, Paris, 1897. ³³ Ed. Med. Jour., Feb. ³⁴ Münch. Med. Woch., No. 4. ³⁵ Cent. für Gyn., No. 1. ³⁶ Bost. M. and S. Jour., Feb. 11th. ³⁷ Med. Rec., Feb. 13th. ³⁸ Med. Times, Feb. ³⁹ Med. News, Feb. 6th. ⁴⁰ Canad. Med. Rec., Jan. ⁴¹ Univ. Med. Mag., Feb. ⁴² Wratsch., No. 43. ⁴³ Münch. Med. Woch., No. 6. ⁴⁴ Cent. f. Gyn., No. 4. ⁴⁵ Indian Med. Gaz., Jan. ⁴⁶ St. Petersb. Med. Woch., No. 4. ⁴⁷ Wien. Med. Woch., Nos. 1 and 2. ⁴⁸ Am. Gyn. and Obst. Jour., Jan. ⁴⁹ Kans. Med. Jour., Jan. 16th. ⁵⁰ N. E. Med. Month., Feb. ⁵¹ Ann. of Gyn. and Ped., Feb. ⁵² Chic. Med. Rec., Feb. ⁵³ Amer. Med. Jour., Feb. ⁵⁴ Buff. Med. Jour., Feb. ⁵⁵ Med. and Surg. Rep., Jan. 16th. ⁵⁶ Ed. Med. Jour., March. ⁵⁷ Bost. M. and S. Jour., Feb. 18th. ⁵⁸ Cent. für Gyn., No. 4. ⁵⁹ N. Y. Med. Jour., Feb. 20th. ⁶⁰ Jour. des Sci. méd. de Lille, Jan. 30th. ⁶¹ Bost. M. and S. Jour., Jan. 21st. ⁶² Edinb. Med. Jour., Jan. ⁶³ N. O. Med. and Surg. Jour., Feb. ⁶⁴ Med. Rec., Feb. 6th. ⁶⁵ Jour. des Sci. méd. de Lille, Feb. 6th. ⁶⁶ Johns Hopkins Hosp. Med. Bull., Jan. ⁶⁷ Med. Rec., Feb. 20th. ⁶⁸ Jour. Am. Med. Assn., Jan. 23d. ⁶⁹ Bost. M. and S. Jour., Feb. 25th. ⁷⁰ N. Y. Med. Jour., Jan. 9th. ⁷¹ La Clin., Feb. ⁷² Mont. Med. Jour., Jan. ⁷³ M. and S. Rep., Jan. 16th. ⁷⁴ Maryl. Med. Jour., Feb. ⁷⁵ Quart. Med. Jour., Jan. ⁷⁶ Le Prog. méd., Jan. 30th. ⁷⁷ Jour. de Méd. de Paris, Jan. 10th. ⁷⁸ N. Y. Med. Jour., Jan. 30th. ⁷⁹ N. O. Med. and Surg. Jour., Jan. ⁸⁰ Chic. Med. Jour., Jan. ⁸¹ Arch. für Klin. Chir., Bd. liv., H. 1. ⁸² Canad. Med. Rec., Jan. ⁸³ Jour. Am. Med. Assn., Feb. 27th. ⁸⁴ Wien. Med. Woch., No. 6. ⁸⁵ Deutsch. Med. Woch., Nos. 3, 6, and 8. ⁸⁶ Med. Rec., Feb. 13th. ⁸⁷ Memph. Med. Jour., Feb. ⁸⁸ Med. News, Feb. 27th. ⁸⁹ Berl. Klin. Koch., No. 2. ⁹⁰ Can. Med. Rec., Feb. ⁹¹ Johns Hopkins Hosp. Med. Bull., Feb. ⁹² Cin. Lan. Clin., Feb. 27th. ⁹³ Ann. Surg., Jan. ⁹⁴ Med. and Surg. Rep., Feb. 6th.

⁹⁵ Chic. Clin. Rev., Feb. and Mar. ⁹⁶ Lancet, Feb. 27th. ⁹⁷ Arch. de Gyn. et de Tocol., Sept., Oct., Nov., Dec. ⁹⁸ Univ. Med. Mag., Mar. ⁹⁹ Brit. Gyn. Jour., Feb. ¹⁰⁰ Intercol. Med. Jour. Australas., Jan. 20th. ¹⁰¹ Jour. Am. Med. Assn., Feb. 13th, 20th. ¹⁰² Jour. des Sci. méd. de Lille, Feb. 27th. ¹⁰³ Practitioner, Mar. ¹⁰⁴ West. Med. Rev., Mar. 15th. ¹⁰⁵ Ann. Gyn. and Ped., Mar. ¹⁰⁶ Am. Jour. Med. Sci., Mar. ¹⁰⁷ New Orl. Med. Jour., Mar.

DISEASES OF CHILDREN.

Auditory Disorders.—M. Chambellan¹ calls attention to the great frequency of ear troubles in both early and late childhood. The otorrhea following measles, scarlatina, typhoid fever, influenza, posterior coryza, and adenoiditis is usually pronounced enough to receive attention, but there is another affection of frequent occurrence—sclerotic otitis, which often begins so insidiously as to escape notice. The usual cause of this disorder is an inflammation of the nasal pharynx propagated through the Eustachian tube. Only those who constantly and systematically examine the pharyngeal cavity can realize how many children suffer from adenoid vegetations or chronic posterior coryza. The objective symptoms begin by the inability to hear such words as are less clearly pronounced than others, and this increases until the children appear to be inattentive or stupid. It is of the utmost importance that the little patients be treated in the early stages of the disease, but parents and teachers are far too liable to attribute the first symptoms to carelessness rather than to any auditory disorder. For this reason Chambellan thinks that it would be very desirable to have physicians carefully examine the children in the various schools once or twice a year, to ascertain the exact condition of their auditory apparatus. Pierre Bonnier² also emphasizes the necessity for a careful examination of the ear, especially if a child has had any pain and purulent discharge; no matter how complete the recovery, he should be under observation during the whole period of growth, and even beyond it. When a child breathes through the mouth, snores during sleep, has frequent attacks of congestion of the fauces with or without swelling of the ganglia, and when he is liable to periods of seeming absent-mindedness and does not answer promptly when spoken to, it is also of importance to ascertain the condition of the auditory apparatus.

Broncho-pneumonia.—Theodore W. Peers³ says that the disease cannot be cut short by any known method, so that the chief indications are to nourish the child, make it as comfortable as possible, and promptly use appropriate remedies in such emergencies as may arise. For harassing cough he gives :

Ammon. chlorid.....	3 ss.
Syr. scillæ.....	3 ij.
Syr. senegæ.....	3 ij.
Tinct. opii camph.....	3 iiij.
Syr. pruni virg.....	q. s. 3 iiij.

¶ [A half-teaspoonful every one to three hours for a 2-year-old child.

He thinks the ill effects of the opiate less than those which follow from a "fight" with the patient every time a nasty

dose of medicine is given. As a stimulant he prefers strychnia to brandy. He objects to many antipyretics for the reduction of fever, and prefers the warm to the cold bath.

Catarrh, Naso-pharyngeal, in Children.—J. Comby⁴ states that this affection is of very common occurrence in children between the ages of 2 and 6 years. It is sometimes seen as early as 12 months. It is of course more frequent in winter than in summer, often following ordinary colds and acute coryza. Malformations of the nose, deviations of the septum, hypertrophy of the pituitary membrane, and sometimes hereditary syphilis, are predisposing causes. Naso-pharyngeal polypi, adenoid vegetations, and any tumor of the nasal fossæ or the pharynx almost invariably produce catarrh of the mucous membranes. A tendency to lymphatic disorders also predisposes to this condition. The symptoms involve the nose and the throat. There is coryza, and the pharynx is found to be covered with purulent mucus, which, by irritation of the epiglottis, aryteno-epiglottic folds, etc., fully accounts for the pharyngeal cough and the nocturnal nauseating cough which leads to vomiting, so often found in children. The bronchi and lungs are normal, and there are no disorders of respiration; but the cough persists for weeks and months, and, even if improved, is apt to reappear. Treatment should be general and local. The little patients are, as a rule, thin, pale, and lymphatic, wherefore cod-liver oil and other tonics, food, air, and sunshine should be prescribed. For the treatment of the local condition sprays and vapors may be used of borated solutions, sulphur waters, etc. Borated vaseline, with or without antipyrin, may be introduced into the nasal fossæ. The most efficacious treatment consists in the instillation of a drop of the following mixture into each nasal fossa night and morning:

Oil of sweet almonds..... 3 ijs.
Menthol..... gr. iv.

Chronic Suppurative Otitis Media.—Robert E. Moss⁵ states that adenoids head the list of causes of this condition. Tuberculous caries is frequently met with and is the most difficult form of suppuration to deal with, for in the majority of cases there is advanced tuberculosis of the lungs, which makes surgical procedures inadvisable unless there are positive signs of serious complications. Cholesteatoma is not an uncommon cause, but rarely requires radical treatment. Granulations, polyps, caries, necrosis, and at times a foreign body, act as immediate causes. The exanthematous fevers are often followed by suppurative processes involving all the important structures of the ear. The author has found, when operating, extensive involvement of the antrum and mastoid, the cells crowded with granulation tissue, caries of bone, the pus overflowing into the middle ear and making its exit through a perforation in the drum; yet there was not a symptom which would aid us in deciding that such a condition existed. If the ophthalmoscope reveals choked disc, cerebral abscess probably

complicates the case and the diagnosis should be guarded. The author believes that there are very few cases of long standing in which we are not justified in performing the Stacche operation after every visible cause has been removed and the discharge continues.

Complete Double Deafness, appearing Three Days after a Fall on the Occiput.—Kaufmann⁶ reports the case of a boy 13 years old, who recovered with somewhat impaired hearing. The lesion was probably a traumatic one in both labyrinths.

Congenital Absence of Outward Movement of Both Eyes.—William M. Leszynsky⁷ reports a case and reviews the literature of the subject. He finds that in the very few cases which have been examined post mortem there has been either complete absence of the muscle or muscles in question, or the muscles have been present, ill-developed or attached to the eyeball in abnormal positions. While such data exist as seem to explain the pathology and morbid anatomy in individual cases, yet the same would not be applicable to all. The doctrines of neuropathology teach that fibrous degeneration and complete absence of muscle may be due to a primary nuclear atrophy, while, on the other hand, a nuclear atrophy may result from a loss of function or atrophy of the muscle. The author thinks, however, that it is a significant fact, so far as he can ascertain, that disease of the nuclei in these cases has never been demonstrated.

Congenital Defects of the Long Bones.—B. E. McKenzie⁸ states that defects, varying in kind and degree, in the long bones are not very uncommon. Sometimes it is only a defective bone that is absent; sometimes an entire limb, or more than one. There is no bone which has not been found absent, except the humerus. In 1894 there were 38 cases reported in which there was defect of the tibia in 30 individuals; the affection in 22 cases existed on one side, while 8 of the cases presented a total defect; of 16 cases where the bone was absent on only one side, 13 presented defect of the right arm and 3 of the left. Of congenital defect of the fibula 47 cases are reported. Of defect of the ulna 6 instances are reported; in only 2 of them was there total absence of the bone. Partial defect of the radius occurs but seldom: some of these cases are polydactylous. The author presents 10 cases which have come under his notice. In 6 of the limbs there was a condition of the skin which gave an appearance of the existence of a cicatrix: this suggests the possibility of a prenatal compound fracture. Another condition that was quite constant in the cases where the radius was absent was the much better function in the digits toward the ulnar border of the hand, showing that the defect toward the radial side is not only a skeletal defect, but that the nerve and muscle supply to those structures present upon the defective side is less complete. In none of the cases was there difficult labor, and in none was any accident known to have occurred during the period of gestation. The author describes

his methods of operating, and some dissections made by F. N. G. Starr are added.

Congenital Fistulæ and Cysts of the Neck.—J. F. Binnie⁹ has made a study of the literature of this subject, and presents the results in a very complete article. In order to understand the origin and varieties of cysts and fistulæ in the neck the formation of the branchial arches in the embryo is discussed. Branchial fistulæ may be complete, incomplete external, or incomplete internal. The external opening may be in any part of the anterior region of the neck between the sterno-mastoid muscles, except in the submental region. The internal opening is usually situated in the neighborhood of the tonsils. Esophageal diverticulæ, or blind sacs situated behind the gullet and opening into the pharynx at the level of the laryngeal opening, have been described, but they are probably incomplete internal branchial fistulæ. A detailed description of the histology follows. Many cases of fistula in the neck require no treatment; others, however, give rise to so much annoyance, owing to the escape of secretions, etc., that a cure is highly desirable. The only successful treatment is excision of the whole fistula.

Congenital Teeth.—Report of a case by E. S. McKee.¹⁰ There were two inferior incisor teeth, loose, one dropping out, the other remaining until the death of the child at the age of 12 weeks from convulsions due to meningitis.

Diphtheria.—In an article on the bacteriologic diagnosis of diphtheria C. C. Hunt¹¹ states that he has found that two and a half to three hours, under favorable circumstances, proved to be not only ample time to obtain a sufficient growth of the culture for differentiation, but that this short time proved an advantage over the longer period; for, during the shorter time, extraneous or associated bacilli, commonly found in the mouth with or without membrane formation, are not yet visible, and hence the field is clear for the observation of the Klebs Löffler organisms, if present, whose development is more rapid than that of any other similar organism under like conditions. This is an important observation, as it places us in the possession of the necessary information we seek more than twenty hours in advance of that obtained by the customary routine. The writer pursues the usual methods. William P. Munn¹² reports three cases of diphtheria of the penis. W. H. Seibert¹³ has an extended contribution on antitoxin and diphtheria. George Duffield¹³ gives his experience with the use of antitoxin in treatment of diphtheria. Joseph H. Lopez¹⁴ discusses the treatment of diphtheria with antitoxin. Concerning the possibility of transmitting the glanders contagion by means of diphtheria antitoxin, Bonhoff¹⁵ concludes, from a series of interesting experiments, that while the serum of two horses afflicted with glanders did not produce the disease in susceptible animals when injected subcutaneously or intraperitoneally, this fact does not exclude the possibility of transmitting the disease by means of the serum when the latter has not been treated

with disinfectants: 0.5 per cent carbolic acid added to the serum of immune horses inhibits the growth of many previously viable glanders bacilli within two to four hours. After twenty-four hours of the carbolic acid's action the glanders bacilli are no longer capable of producing the disease in guinea-pigs. Finally, it must be remembered that the antitoxin is never put on the market less than seven days after the addition of the carbolic acid. M. Gaston¹⁶ has injected Roux's serum in 31 cases with 26 recoveries. The only unpleasant sequelæ were temporary urticaria in 2 cases and slight anuria in 1.

Empyema.—W. Menzies Hutton¹⁷ inserts the tube, with a valve attached, in the incision, so that with the expiratory act the air and discharge are expelled, but with inspiration the valve closes and no air gets back into the pleural sac; the lung remains expanded, and is ready to expand still more with each expiratory effort—in short, the valve retains what is gained.

Epidemic Influenza (Catarrhal Fever) in Children.—John Madison Taylor¹⁸ believes that none of the infectious diseases deserves more prompt attention both in prophylaxis and in treatment. The fact that the infection attacks very young children, and that one attack does not prevent another, and that the prostration is out of all proportion to the obvious organic disturbance, makes it a disorder which calls for the best medical aid. There is no distinctive type of infantile influenza. It complicates some diseases, and appears to be antagonistic to others, notably scarlatina and diphtheria. Scarlatina seems to be subdued by it into a mild form. With diphtheria it is apparently never associated, although influenza is frequently accompanied by a form of sore throat with a yellow, lumpy deposit in large masses, closely resembling diphtheria; the Klebs-Löffler bacillus is not present, however. The prognosis is always grave, though the sequelæ and complications are less marked than those occurring in adults. Robust children are frequently changed, however, into frail, feeble beings for years or life. The treatment is symptomatic.

Exomphalus with other Malformations.—Walter M. Woodhouse¹⁹ describes a fetus of six and a half to seven months in which there was absence of the vault of the skull except a part of the frontal bone. The roof of the orbit was absent. The neural arches were deficient over the entire spinal column; the thorax was abnormally short and contained only the thymus gland. A pedunculated mass the size of an orange sprang from the region of the umbilicus; it was divided into two parts by a flat, muscular structure, and one side contained the heart and pericardium, lower part of esophagus, and the lungs. The larger cavity contained the stomach, intestines, liver, and spleen. The large intestine re-entered the true abdominal cavity and continued as the rectum to the anus. Kidneys and pelvic organs were normal. The mother was syphilitic.

Feeding of Infants with Gastro-enteric Diseases by means of the Modified Milk of Backhaus.—Thiernich²⁰

reports a series of 40 cases so treated, with good results, not, however, equal to those of breast-feeding.

Fibrinous Bronchitis in Childhood, Acute.—Nachod²¹ reviews the literature and reports a case in a girl $4\frac{1}{2}$ years old, in which cultures from the throat and from the expectorated bronchial casts showed that staphylococci (albus) only were present. The diagnosis was primary fibrinous bronchitis with atelectasis and lobular pneumonia. Chemical and microscopical examinations of the expectoration demonstrated the presence of fibrin beyond a doubt.

Glioma of the Retina.—T. E. Murrell²² concludes from a discussion of this subject as follows: (1) Glioma of the retina is a disease peculiar to early childhood. (2) It is not especially to be found in those of fair skin, as has been suggested by some writers. MacNama records numerous cases in the black races of India. (3) It is a disease of marked malignancy when once it breaks the bounds of the structure in which it has its origin. (4) Early diagnosis and prompt removal of the eye offers fair hope of permanent cure. (5) When once it extends beyond the ocular tunics it is almost certainly fatal from a recurrence in the orbit or extension to the brain.

Hysteric Rapid Breathing (Hysteric Tachypnea).—David Riesman²³ writes that disturbances of the respiratory function as manifestations of hysteria are not common, yet quite a large variety have been described, cough, hiccough, laryngeal spasm, and rapid breathing being the most important. Any one of these may constitute the dominant symptom, other signs of hysteria being either but slightly marked or rarely entirely absent. When the latter is the case the determination of the true nature of the affection may be extremely difficult. Abnormal slowness of respiration is not infrequent in hysteria, but is generally a subordinate phenomenon occurring in states of trance and catalepsy. Excessively rapid breathing in a typical case is of the upper costal type and is unaccompanied by effort; the diaphragm moves scarcely at all; the respiration rate varies from 70 to 100 per minute, or is even much higher. It is not a voluntary acceleration. Emotion increases the frequency; in most cases the rate drops to normal during sleep. The pulse is not accelerated. The author reports two cases of his own.

Ichthyosis Congenita, Pathology of.—Gerstenberg²⁴ has studied a case occurring in a fetus forty centimetres in length, which lived forty-seven hours. Microscopical examination showed nothing abnormal in the brain, cord, lungs, or kidneys. The brachial plexus gave evidence of a moderate increase of connective tissue; in the skin there was marked hypertrophy of the rete Malpighii, atrophy of sebaceous glands, and very few hairs to be seen. The subcutaneous tissue was a little firmer than normal, but no trace of recent inflammation appeared. The author inclines to the trophoneurotic theory of the etiology of the disease.

Intussusception.—The Hunterian lectures by D'Arcy Power²⁵ on the pathology and surgery of this disorder are both

profound and exhaustive. The evidence derived from anatomical, physiological, pathological, and clinical data renders it legitimate to assert that ileo-cecal intussusceptions occur when the colon is considerably larger than the ileum, and is so unduly movable that it readily allows itself to become invaginated when once the process has begun. This variety of intussusception is essentially an affection of childhood, and such an undue increase in the width of the colon implies either a congenital abnormality or an unduly rapid growth, for at birth the diameter of the large intestine is practically the same as that of the ileum. It may be stated broadly that, as regards the ileo-cecal portion of the intestine, the increased mobility, coupled with the unduly rapid growth in the width of the large intestine, is probably associated with increased and irregular peristaltic movements of the large intestine. The cause of intussusception is obscure, but clinical evidence shows that if suitable anatomical and physiological conditions be present it may be produced by mechanical causes, such as direct injury to the abdomen, sudden and violent muscular efforts, gymnastic movements, jolting or dandling, paroxysmal coughing, or it may be even the result of greediness, as in cases recorded where the condition occurred after the eating of cherries—stones and all. As soon as the intussusception has started the anatomical peculiarities again become of paramount importance, for they determine the character of the intussusception. In the ileo-cecal forms a wide colon with a few and simple ileo-colic folds, devoid of glands, will allow the intussusception to run a chronic course, even though the amount of bowel invaginated is very great; while complex fossæ, with numerous glands at the ileo-colic angle and prolongations of mesentery along the end of the ileum, will no doubt so far steady the ileum as to render its intussusception less likely—though should it occur the additional amount of tissue invaginated will render the impaction peculiarly tight, so that, if gangrene is not produced at once, early adhesions will be formed and the intussusception will soon become irreducible. As regards treatment, it is necessary to teach the majority of mothers that early medical advice and abstention from domestic remedies are required in all cases of painful constipation occurring suddenly in young children. Purgatives should always be withheld in intussusception. In reducible intussusception the invaginated portion of the intestine has a constant tendency to reduce itself until its muscular coat becomes paralyzed or adhesions are formed about its neck. This tendency to reduction is probably counteracted during the earlier stages by tonic contraction of the ensheathed bowel, for if this be reduced or abolished by mechanical or other means the intussusception can easily be reduced until hardly any invagination remains. Inflation or injection of the large intestine is the safest and most satisfactory method for all cases of uncomplicated intussusception, provided the patient has been seen early enough, that the distending force be applied gradually, and that it be not too great. Injection is preferable to

inflation, because the force employed can be graduated with greater accuracy and the apparatus is always at hand. But irrigation is not of the least service where one part of the small intestine is invaginated into another, for fluid can only be made to pass through the ileo-cecal valve when over-distension of the colon has caused a mechanical separation of its two segments. There is apt to be cracking of the serous coat of the large intestine when the resultant pressure of the fluid is about two and a half pounds to the square inch—that is, when the irrigator is raised more than five feet above the body of the patient. It is impossible to estimate the capacity of the colon in any individual case, as it differs widely. Inversion of the patient does not render irrigation more successful, but long-continued distension under low and uniform pressure is of more avail than rapid dilatation under high pressure. The length of the intussusception is no bar to its reduction by irrigation. There is liability to recurrence after reduction, and when this is a marked feature in the case it is better to open the abdomen at once. Another objection to treatment by injection is that we cannot see what we are doing, and the reduction is incomplete in some instances. When irrigation has failed to reduce an intussusception the method of treatment must not be continued too long a time, because the patient may collapse even though no injury is done to the bowel. Abdominal section must then be done at once. Recurrence of intussusception is less usual after abdominal section than when the reduction has been brought about by injection. In a few cases the intestine has remained so edematous that the tumor has been felt even after the wound closed, leading the operator to think that the invagination had recurred; such a condition rapidly disappears and with it the symptoms of obstruction. There is another condition of uncommon occurrence, in which, after abdominal section has been done and the intussusception has been reduced, the patient passes one or two healthy movements and seems to be on the highway to recovery, but within a few hours or days he becomes constipated, the abdomen becomes distended with gas, and he dies; this is due to paralysis of the bowel at the seat of invagination. Extensive adhesions, gangrene, or ulceration may render the intussusception irreducible. In the treatment of these cases the author believes that Maunsell's method promises the most satisfactory results.

Lacerated Perineal Wound.—A. Primrose²⁶ reports a case in which death from sepsis followed notwithstanding the use of antistreptococcic serum. The writer feels that the value of antistreptococcic serum is questionable. We would be justified in using it if we had scientific proof that it introduced a something into the system which was the direct antagonist of the toxins produced by the streptococcus, and which was capable of destroying entirely, or at least diminishing, the toxins present in the tissues. At present, however, bacteriologists tell us that the serum *may* have the reverse effect. It is now known to be germicidal in its action, and, further, we

know that there are bacteria which, when killed off, are capable of producing more virulent toxins in their death than during life. It is easy to imagine, therefore, that the serum may be efficacious when the bacteria are not present in large quantities and the individual is capable of withstanding the effects of the dosage of toxins produced by the death of the organisms.

Lumbar-Puncture, Diagnostic and Therapeutic Value of; Pressure regulated by the Mercury Manometer.—Wilms²⁷ gives a detailed report of 30 punctures made in 23 cases, of which 4 had epidemic cerebro-spinal meningitis, 5 tubercular meningitis, 3 pseudo-meningitis with infectious diseases, 9 various lesions (syphilis, hydrocephalus, etc.), and 2 cerebral tumor. Bacteriological examination of the fluid is very important, the germs found in these cases having been: tubercle bacilli, streptococci, staphylococci, pneumococci, and meningococcus intracellularis. The chemical examination for sugar and albumins is also of value. The author found the normal pressure to be ten millimetres Hg: it was especially increased in the case of cerebral tumor; the pulse and respiration variations are very interesting. As much as one hundred and ten cubic centimetres of fluid had been evacuated in cases of cerebro-spinal meningitis. The negative results (as in pseudo-meningitis) are also valuable. While the therapeutic results are usually only transient, they are of great use in making the patient more comfortable.

Luxation of the Hip.—Victor Rochet²⁸ reports four cases of unilateral congenital luxation of the hip in which the operation, which was attended with success, consisted of the following steps: 1. The classic incision of resection of the thigh according either to Langenbeck's or Ollier's method. 2. Incision of the capsule in its entire length. 3. Opening of the capsule and protrusion of the head of the femur, in order with a sharp curette to scrape off all the serous lining which covers it. With a knife all the cartilage covering it is also peeled off. 4. The head of the femur is then drawn down as far as possible by traction upon the leg and counter-pressure upon the trunk and pelvis. 5. The whole superior portion of the capsule above the femoral head is sutured so as to prevent the return of the bone into that portion of the capsule. 6. Section with the scissors of any part of the capsule left lax and floating, leaving only enough of it to be able to suture (with silk) the original incision of the capsule above the head and neck of the femur, in such a way as to form a fibrous cylinder which accurately fits around and encloses them. 7. Suture of the muscles and integument. Rochet claims that this operation is always practicable in cases of *unilateral* luxation of the hip, and that it is not grave and reaches the desired result with the minimum amount of traumatism.

Mastoiditis.—G. A. Whitledge²⁹ says that abscess of the mastoid bone is of a strictly surgical nature and should be treated as such. The general practitioner does not, as a rule, consider acute or chronic suppuration of the middle ear as of very

great importance; it is these neglected cases that result in abscess of the mastoid. Ewing N. Day¹² thinks that, as a rule, patients do not come under observation early enough for abortive treatment to be of much avail. If seen in time the application of the Leiter coil with ice water will in a certain percentage of cases arrest the progress of the disease and produce a cure. Relief of pain must not be mistaken for permanent improvement. If after forty-eight hours of this treatment there is no decided improvement, further continuance will be useless. Dangers from operation have, as a rule, been exaggerated. They are so slight that in doubtful cases an exploratory operation is justifiable. The four points to be avoided are: Injury to the facial nerve in its passage between the antrum and the external canal and middle ear; injury to the external semicircular canal when the opening is deep; injury to the dura in the middle cranial fossa when the site of operation has been too high; and injury to the lateral sinus, probably the most frequent accident. The author reports 17 cases successfully operated upon.

Meningitis.—L. B. Hayne¹⁹ diagnosed a case of purulent cerebro-spinal meningitis by means of lumbar puncture, diagnosis being confirmed at the autopsy. Many of the symptoms pointed to acute cerebral abscess, but the diagnosis reached by the puncture showed the futility of trephining.

Mumps.—Report of a case by F. Lucas Benham,³⁰ with cerebral symptoms and a high temperature, and a review of some other cases previously recorded.

Nasal Stenosis.—Considering that nasal stenosis is now recognized as an important factor in the causation of many forms of disease not obviously of nasal origin, George J. Lund³¹ urges more frequent and careful examination of the nose and throat. By surgical measures, he says, we may prevent in young children and in youth deformity of the chest with its attendant evils, marasmus and even death; also deafness, impairment of speech and of the mental faculties. Several cases are quoted in support of his argument.

Osteomyelitis in Infancy.—Swoboda³² reviews the literature and reports a case (child 3 months) which recovered perfectly, having followed an attack of "glandular fever." Staphylococci were found in the pus. As for treatment, early incision and drainage seem to prevent the spreading of the infection to other joints and to internal organs.

Osteoplastic Radical Operation for Spina Bifida.—Postnikow³³ reviews the literature and reports a case in a 4-year-old boy, who was completely cured by operation. The defect in the vertebræ was remedied by bone from the ilium.

Papillomata of the Larynx.—G. Hunter Mackenzie¹⁹ reports a case in which the affection was successfully treated by simple tracheotomy. The child wore the tube for seven months, during which period pieces of papillomata were detached and coughed up.

Pertussis, Pathology of.—Fröhlich²⁰ studied 55 pertussis

cases by means of blood counts, and found that a true leucocytosis is the rule, but that its height has no constant relation to the severity of the paroxysms nor to complications. Its presence places pertussis among the general infectious diseases.

Polyneuritis.—Leonard G. Guthrie³⁴ reports two cases which appear to have been the result of influenza.

Pott's Disease, the Treatment of.—In an article upon this subject Charles W. Wilson³⁵ states that one must consider in treating Pott's disease, first, its tuberculous nature demanding attention to general treatment, and, second, its local treatment. Rest and fixation fulfil all the mechanical requirements of treatment. Physiologic rest is only possible in the recumbent position; but recumbency is incomplete in itself, for when the body is changed to the erect position a brace will be necessary for complete cure. The value of the recumbent treatment is indicated in cervical cases for the relief of pain and discomfort, because the head can be fixed, thus lessening the danger to abscess, preventing dislocation and deformity, and checking the disease before the function of the part is gone; in upper dorsal cases, because deformity in this region is difficult to control and the attitude may be faulty; in the middle dorsal region, to relieve the grunting respiration and faulty attitude, pain and weakness; and in the lumbar region, where psoas contraction makes the erect position difficult and impossible to maintain. Amongst the poor it is difficult to carry out recumbency properly, so we must resort to jackets and braces. Jackets certainly are the best means of treatment where lateral deviation is present. If this is not marked, however, it disappears sometimes with the antero-posterior brace of Taylor. Where great deformity obtains the jacket is demanded. English surgeons are very doubtful of the utility of plaster jackets, and favor recumbency for long periods. Suspension relieves intravertebral pressure, but is inefficient in itself, as it can be applied only a part of the time. Plaster can be carried beyond the shoulders, but when the disease is above the seventh dorsal, Sayre's head spring or jury mast, or Taylor's or Shaffer's chin support, is necessary. Below the fourth dorsal the jacket or spinal brace or Taylor's spinal brace is the best arrangement when it can be properly applied and kept in order; it must fit absolutely. An abscess should not occur under proper treatment, and if found should tend to disappear if adequate protection and support are provided. Unless it can be dealt with radically it should be let alone.

Prolapse, Procidentia, and Invagination of the Rectum.—According to George Ryerson Fowler³⁶ the chief predisposing cause of the production of these affections is a relaxed condition of the muscular and connective-tissue structures of the bowel. The principal exciting causes during childhood are conditions of constipation, diarrheal and dysenteric affections, the presence of rectal polypi, and certain forms of ascarides, all of which produce more or less rectal tenesmus. The yielding of the submucosa under these conditions may only result in

slight prolapse; or, if the pre-existing degenerative changes are pronounced, and particularly if these involve the muscular apparatus to any marked degree, procidentia, and finally invagination, may follow. Adhesions between the reflected layers of the balano-preputial mucous membrane, by offering obstruction to the free flow of urine, aided possibly by reflex action, may serve as an exciting cause. Simple prolapse is most frequent in childhood, and procidentia is more often observed in those of advanced years. Usually the onset is gradual, the mucous membrane becoming at first prolapsed, procidentia and finally invagination occurring as later stages of the condition. In view of the fact that the conditions usually occur in weak and feeble children and in debilitated adults, the exhibition of tonics, and change in the habits and occupation of the patient, are indicated. The diet must be regulated and constipation avoided. Moving the bowels in the recumbent position will sometimes prevent the recurrence of the prolapse. If there are any remediable exciting causes they must first be removed. After reduction of the protrusion, with or without an anesthetic, the buttocks should be strapped together with long strips of adhesive plaster to prevent reprotrusion. Cold-water enemata are sometimes useful as a preventive. If, in spite of these measures, the condition persists in its return with each act of defecation, methods of radical cure must be entertained. In children the method of linear cauterization introduced by Van Buren gives the best results. After thoroughly emptying the bowels and the administration of an anesthetic, the mucous membrane is lightly touched in narrow, longitudinal strips with the cauterizing iron and the mass reduced. The bowels are kept confined several days with opium. Some extreme cases demand removal of the mass before relief is obtained. Various other methods of operative procedure are fully discussed in the paper.

M. Broca³⁷ holds that rachitis is largely responsible for prolapsus of the rectum, as children suffering from rectal prolapse nearly always have the large abdomen, the relaxed muscles, and flaccid abdominal walls of the rachitic. In addition to this muscular insufficiency they usually have obstinate constipation, and the straining efforts often induced cause partial or total prolapse of the mucous membrane. This should not be neglected, for it may lead to hemorrhage; the rectitis causes pain and tenesmus. To reduce the tumor the child is placed upon its side and the upper thigh elevated; a compress covered with vaseline is then placed on the prolapsus and through it the five fingers of the operator press upon the prolapsed tissue and push it into place. Pressure must be steady, for if the child cries reduction will be difficult. However, the tumor will soon be felt to enter the rectum, and then the thighs must be pressed closely together to prevent its exit. After a few minutes this pressure may be removed, but the prolapse is likely to recur at the next evacuation of the bowels. For this reason the child must be laid upon its side and the excrements

received in a napkin. It must not sit for a long time upon the vessel, and it will be well to assist Nature by means of injections and suppositories. Immediately after each evacuation any prolapsed membrane must be pushed into place and the child kept in the recumbent position for half an hour. Locally the rectum must be treated by injections of cold solutions of boracic acid and by rhatania. The general condition must receive the most careful treatment: phosphate of lime, cod-liver oil, salt baths, and a nourishing diet will cause rapid improvement. The prolapsus will decrease in size and occur less frequently, and finally cease altogether.

Resection of Femur and Nailing of the Fragments.—Bittner³⁸ reports the case of a boy 13 years of age whose right leg was seven centimetres shorter than the left as the result of a badly healed fracture. After operation and recovery the shortening was found to be only three centimetres.

Sarcoma of the Pelvis in a Girl Eleven Months Old.—Johannessen²⁰ reports a case in detail. The growth was a round-cell lymphangiectatic sarcoma, and proved fatal.

Scarlatiniform Eruptions following Operation or Traumatism.—In an article upon this subject Francis R. Packard³⁹ states that the view that these eruptions should be considered as symptoms of true scarlatina, and that the patients should be isolated and treated as the subjects of that disease, is held by some and disbelieved by others. The latter hold that the scarlatina is a mere coincidence or a transient erythema and of no particular significance. Hoffa has classified the rashes occurring under such circumstances as follows: 1. Those due to vaso-motor irritations. They are chiefly seen after an operation on parts which have an abundant nerve supply, and occur a few hours after the operation. They resemble an erythema or sometimes an urticaria, and disappear in a few hours. Under this head he puts puerperal and scarlet fever. 2. Toxic erythemas. These appear without prodromata after a lapse of from twenty-four to forty-eight hours, and are accompanied by much febrile and usually some gastric disturbance. They usually present themselves as a diffused redness, or as large, isolated patches of redness with clear interspaces, appearing only on the extremities and vanishing in twenty-four hours without desquamation. They are the result of absorption of the wound secretions, and are analogous to drug eruptions. 3. Infectious erythemas in which the eruption is indicative of a general septic condition. They may be erythematous or urticarial, and may be in diffused or isolated patches; they are always petechial, sometimes pustular, and sometimes closely resembling the rash of scarlet fever. The nature of the injury or operation has little or nothing to do with the development of the eruption. Women are more susceptible than men.

Splenic Tumor in Rickets.—Starch²⁴ reviews the literature and gives the results of his own cases, in which enlarged spleen was found in 68 of 100 cases seen during 1895. There was no constant relation between the severity of the bone lesions and

the presence of the splenic tumor, and congenital syphilis was rigidly excluded. There is nothing characteristic nor diagnostic, macroscopically or microscopically, about the splenic tumor in rickets. While it was present in 53 per cent of autopsies on rachitic children, it was found in 50 per cent of non-rachitic cases, all under 3 years of age.

Tetany.—R. Romme,⁴⁰ in a study of the etiology of this affection in children, based upon statistics, says that while it may occur more frequently in the rachitic, he cannot hold with Kassowitz that tetany is a symptom of rachitis. Neither are gastro-intestinal troubles invariably the cause, although they are of frequent occurrence in conjunction with this disorder. In fact, he believes it impossible at present to establish any one definite and invariable cause of tetany. Like epilepsy, it may be due to many conditions, such as those above mentioned, and to infectious diseases and various intoxications. It may be that these toxins, ptomaines, poisons, infectious germs, etc., exert some influence of a functional rather than anatomical nature upon the central and peripheric nervous system, or that, as Kalischer suggests, they create in the organism a condition favorable to the penetration of a specific germ which acts in a special manner upon the central nervous system. Epidemics of tetany point to its infectious origin in certain cases. Jacob³³ reports a case of tetanus in a boy 14 years old cured by antitoxin. The tetanus was the result of an infected pistol-shot wound in the shoulder. The injections were begun on the fifth day of the disease, and were followed by improvement two days later. An exanthem of short duration was the only untoward result of the antitoxin's use. Recovery was complete.

Tracheotomy and Intubation.—Sevestre⁴¹ compares the two operations and reaches the conclusion that intubation is indisputably the method to be given first preference in croup, but that it should be performed only when the patient can be under the direct surveillance of a physician accustomed to the operation. It is easier to perform than tracheotomy, does not expose the patient to the dangers of secondary infection of the surfaces of a wound, and is less frequently followed by bronchopneumonia. Moreover, should there be fever, balneotherapy is easy of application, whereas it is almost impossible in the case of a child with an open wound in its neck. There is, however, great danger that the tube may be displaced or that it may become obstructed, and for this reason the care of relatives or nurses is insufficient. Unless, therefore, a skilled physician can give his time to watch the case, he had better resort to tracheotomy. J. L. Wiggins⁴² lays down the following rules for the operation of tracheotomy: Fix the parts through which the incision is to be made with the thumb and forefinger, exercising great care that in so doing parts are not drawn to either side; make the incision long enough at first stroke and deep enough to pass through skin and superficial fascia; do not begin dissecting until you have reached something to dissect, then work your way carefully down to trachea, avoiding, first, the isth-

mus of the thyroid, second, the congested blood-vessels. As to the thyroid, carefully protect it by drawing it upward with blunt retractors. Ligate or clamp the blood vessels or draw them out of the field of operation. Haste at this stage of the operation is inadvisable. When three or four of the upper rings of the trachea are exposed, gently steady it and open with a firm, well-guided incision directed upward in the median line. Do not push the membrane in front of the canula, and do not insert the tube between the skin and trachea in the excitement attending the completion of the operation. The author reports a number of cases. Fronz²⁰ gives the indications for intubation and for tracheotomy respectively, and thinks that the former may be a prophylactic, and again a great help to the latter.

Tuberculosis.—E. Ausset⁴³ reports the case of a little girl of 7 years suffering from tuberculosis of the lungs and of the mesenteric glands, with a slight involvement of the peritoneum. With a view to experimentation he subjected the patient to the influence of the Röntgen rays upon the abdomen for an hour daily. After ten days the child had gained seventeen and one-half ounces in weight, her appetite was much improved, the abdomen was no longer sensitive, and she was much brighter and manifested more interest in what was occurring about her. After ten days more the diarrhea was diminished, the other conditions remaining about the same. Treatment had to be suspended because the batteries were exhausted. The patient immediately fell back to her previous condition, cachexia became marked, and death supervened. The author believes that in a more favorable case—one in which the tuberculous lesions were less advanced—the Röntgen rays might be efficacious in arresting the disease, not by direct action upon the Koch bacillus, but possibly by a stimulation of phagocytosis. In a clinical lecture Pierre Sébilleau⁴⁴ says that the patients brought to him as examples of tuberculous adenitis of the neck should be divided into two classes—first, those who have ganglionic tuberculosis, some of whom may be in an advanced stage of the disease, and others who may, so to speak, have a physiological form of tuberculosis (the presence of Koch's bacillus in a ganglion indicating simply the struggle in, and not necessarily the defeat of, the organ); and, second, those who have merely an adenopathy of small moment. The latter may offer a medium favorable to the growth of the bacillus, but they can scarcely be called tuberculous: and before operative measures are resorted to, it would be well to try the effects of nourishing food, tonics, comfortable surroundings, and rest in the country or by the sea.

Tuberculosis of the Bronchial Lymph Nodes.—Fronz²⁰ reports four cases in detail. In two tracheotomy was necessary and recovery followed; the other two were fatal as the result, in one of them, of a severe hemorrhage caused by the ulceration of a tubercular lymph node into a blood vessel.

Tumor of the Kidney.—Dr. Wentworth⁴⁵ reports a case in which a tumor was removed from a female child $2\frac{1}{2}$ years old.

The nature of the growth could not be made out with certainty, but it was evidently malignant and complex.

Umbilical Fistula with Prolapse of the Intestine.—C. M. B. Cornell³³ reports a case. The umbilical cicatrix seemed normal after separation of the cord. To the left was what appeared to be a healthy sore. On the twenty-first day, without previous warning, there occurred through this sore or fistula a prolapse of invaginated intestine. This was reduced and the abdominal opening successfully closed.

REFERENCES.

- ¹ Jour. de Clin. et de Thér. inf., Feb. 4th. ² Jour. de Méd. de Paris, Feb. 14th. ³ Kansas Med. Jour., Feb. 20th. ⁴ La Méd. mod., Feb. 3d. ⁵ Med. Rec., Feb. 27th. ⁶ Wien. Med. Wochen., vol. xlvii., No. 5. ⁷ N. Y. Med. Jour., Feb. 27th. ⁸ N. Y. Med. Jour., Feb. 20th. ⁹ Kansas City Med. Index, Feb. ¹⁰ Jour. Am. Med. Assoc., Feb. 6th. ¹¹ Peoria Med. Jour., Feb. ¹² Pittsburg Med. Rev., Feb. ¹³ Jour. Am. Med. Assoc., March 6th. ¹⁴ Med. News, Feb. 6th. ¹⁵ Berliner Klin. Wochen., vol. xxxiv., No. 5. ¹⁶ Gaz. méd. de Nantes, Jan. 8th. ¹⁷ Lancet, Feb. 6th. ¹⁸ Phil. Polyclinic, Feb. 20th. ¹⁹ Lancet, Feb. 13th. ²⁰ Jahrb. für Kinderhk., vol. xlv., No. 1. ²¹ Prager Med. Wochen., vol. xxii., Nos. 3, 5, and 6. ²² Denver Med. Times, Feb. ²³ Phil. Polyclinic, Feb. 13th. ²⁴ Deutsch. Archiv für Klin. Med., vol. lvii., Nos. 3 and 4. ²⁵ Lancet, Feb. 13th and 20th. ²⁶ Canadian Pract., Feb. ²⁷ Münch. Med. Wochen., vol. xlv., No. 3. ²⁸ Lyon Méd., Feb. 21. ²⁹ Am. Pract. and News, Feb. 6th. ³⁰ Lancet, Jan. 30th. ³¹ South. Cal. Pract., Feb. ³² Wien. Klin. Wochen., vol. x., No. 4. ³³ Deutsch. Med. Wochen., vol. xxiii., No. 7. ³⁴ Med. Presse, Feb. 17th. ³⁵ Montreal Med. Jour., Feb. ³⁶ Med. News, Feb. 27th. ³⁷ Le Bull. Méd., Jan. 24th. ³⁸ Prager Med. Wochen., vol. xxii., No. 5. ³⁹ Med. News, Feb. 20th. ⁴⁰ Gaz. hebdom. Méd. et de Chir., Jan. 24th. ⁴¹ La Progrès méd., Feb. 6th. ⁴² Med. Rev., Feb. 13th. ⁴³ Jour. de Clin. et de Thér. inf., Feb. 11th. ⁴⁴ Gaz. méd. de Paris, Feb. 13th. ⁴⁵ Bost. Med. and Surg. Jour., Feb. 25th.

THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XXXV. MAY, 1897.

No. 5.

ORIGINAL COMMUNICATIONS.

CASES OF PUERPERAL SEPSIS IN WHICH
THE ANTISTREPTOCOCCIC SERUM WAS EMPLOYED.¹

BY

BARTON COOKE HIRST, M.D.,
Philadelphia.

(With charts.)

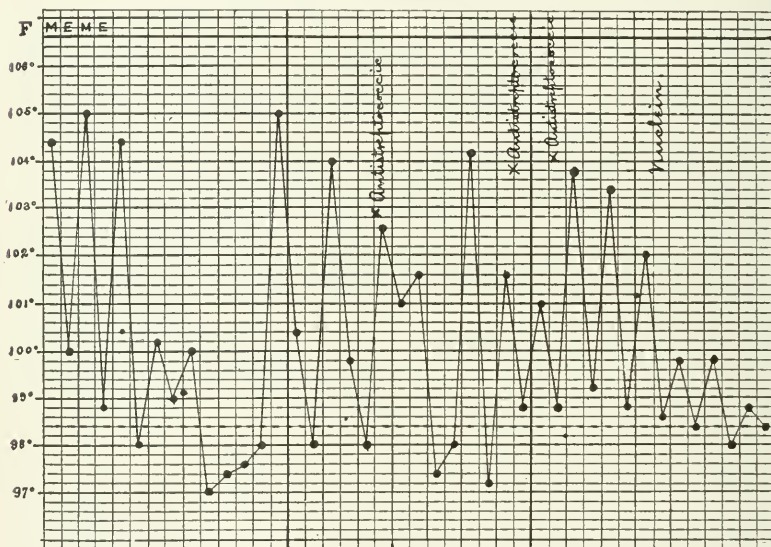
WE have so many resources in the treatment of the different kinds of puerperal sepsis that I have in the past winter felt called upon to administer the serum therapy of puerperal sepsis only three times. All of the septic cases under my observation during this season have been cured in one way or another, with a single exception. For example: I have seen in the last few months one case of large intraperitoneal abscess following labor which was cured by incision and drainage, though the patient was in a desperate condition at the time of operation.

In another case there was a large abscess between the layers of the broad ligament that was opened above Poupart's ligament with entire success. I have seen many cases, during the

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 18th, 1897.

same period, of sapremia from the disintegration of hypertrophied decidua and of other putrescible materials in the uterine cavity, all of which were promptly cured by the evacuation and disinfection of the uterine cavity.

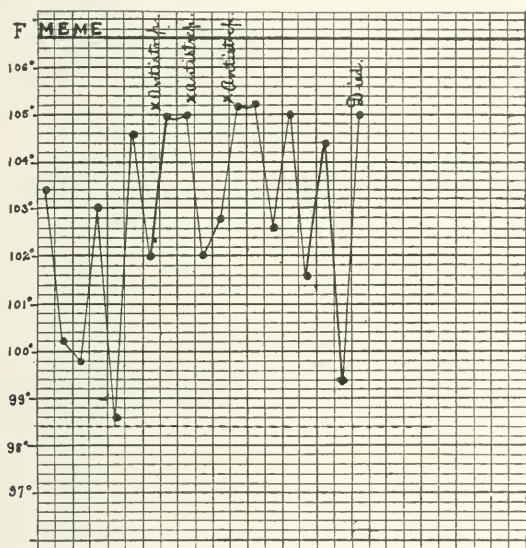
One other case which I recollect was most probably a sarcoma of the placental site, in which the redundant mass sloughed, giving rise to a foul discharge and high fever for several weeks. This woman also recovered from the septic infection after a long-continued irrigation of the uterine cavity and by the aid of stimulation and support. The three cases in which I have used the serum may be briefly described as follows:



for the first time in several weeks, and did not rise again. Whether this was a mere coincidence or not it is impossible to say.

CASE II.—This case was also a typical one of thrombo-phlebitis with the appearance of milk-leg. The woman was desperately ill when the serum therapy was begun, which was, I must confess, rather late in the course of the fever. The patient received thirty cubic centimetres on three successive days without any benefit at all; on the contrary, she grew steadily and rapidly worse and died shortly afterward.

CASE III.—Following a Cesarean section with the amputation of the womb, which I performed on a very bad subject



CASE 2.

whose urine was so albuminous before the operation that it turned perfectly solid on boiling, there appeared on the second or third day after the operation some evidence of a slough in the cervical stump, from which very nearly all the blood supply had been cut off by a careful ligation of both broad ligaments. There was a foul discharge from the vagina, an elevation of temperature to a moderate degree— $101\frac{1}{2}^{\circ}$ —and a decided rapidity of the pulse. After watching the case for several days and finding that the symptoms did not improve under irrigation, stimulation, and support, I tried the injection of the serum as an experiment. The result was rather striking, but not at all favorable. Directly after each administration of five cubic

centimetres on two successive days the patient's temperature rose a degree or two. She broke out into a profuse sweat which lasted some time, and the pulse became really alarming in character, running up to 160 and becoming irregular and weak. Within twenty-four hours after the second injection the patient's temperature dropped to normal and stayed there, but at this time there was a considerable quantity of pus discharged from the vagina, which came obviously from an abscess between the cervical tissues and the peritoneal flap sewed over them. It was this, I imagine, which accounted for the sudden disappearance of the fever.

It seems to me that we are not yet in a position to pronounce any judgment on this new treatment for puerperal sepsis. We should not be so prejudiced against it that we fail to give it a thorough clinical test; and, on the other hand, it seems to me unfortunate to entertain too enthusiastic an idea of its value until we can speak from a larger experience.

The following objections may be urged against this treatment with considerable force: First, the well-tried older plans of treatment for puerperal sepsis will result in a cure of about four-fifths of the cases. If, therefore, the serum is employed along with the other suitable treatments for the different varieties of puerperal sepsis, four out of five cases will recover, and the recovery may be attributed to the serum when it was really due to some other form of treatment.

Second, it is difficult to procure a thoroughly reliable preparation of the serum. Any one who has read Marmorek's articles in the *Annals* of the Pasteur Institute must be struck with the great care required in the production of this serum and the necessity for a high degree of skill and conscientiousness in the work. I feel quite certain that some of the preparations on the market are not prepared in a satisfactory manner, and I for one should not be willing to use an antistreptococcic serum simply because it bore this label on the bottle and without knowing exactly how it had been prepared.

Third, the use of this remedy must be always more or less empirical. It is true that the majority of puerperal infections are due to streptococci, possibly two-thirds of all cases, but there remains a third or more of cases in which there is a mixed infection or in which the infecting agent is not the streptococcus at all. A bacteriological examination of the uterine discharges is not enough to solve this question. There are certain cases of thrombo-phlebitis and of lymphatic infection in which

the infecting agent cannot be discovered any longer in the uterine cavity or in the cervix, and, on the contrary, there are certain cases in which the streptococci may be found in the birth canal but in which there has not yet been an invasion of the organism by these bacteria.

Fourth, the treatment is not entirely free from risk. Goulard, and Bar and Tissier report two cases in which the woman's death was unquestionably due to the serum.

Fifth, there is some danger that too great reliance for a time might be placed upon this form of treatment to the neglect of older, better tried, and perhaps more successful plans.

Sixth, no one yet knows how this remedy acts; if it simply produces a hyperleucocytosis there are other and simpler agents which will have the same effect.

These objections, however, are not so weighty in my mind as to forbid my giving the method an extensive trial, which I propose to do in the future, not, however, neglecting other methods of treatment which have stood me in good stead in the past, and in which I feel the greatest confidence from long experience.

1821 SPRUCE STREET.

A CASE OF PUERPERAL SEPSIS SUCCESSFULLY TREATED WITH ANTISTREPTOCOCCIC SERUM.¹

BY

RICHARD C. NORRIS, A.M., M.D.,

Lecturer on Clinical and Operative Obstetrics, Medical Department University of Pennsylvania; Physician in charge Preston Retreat; Gynecologist to the Methodist Hospital and to the Philadelphia Hospital, Philadelphia.

(With chart.)

As a rule very little value can be attached to the report of a single case, but the treatment of puerperal septicemia with an antitoxin is so important, and the clinical history of a case recently under my care is so full of interest, that I feel justified in offering the history of that case as a contribution to the clinical study of serum therapy.

I was asked to see the patient, a primipara, Mrs. K., with

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 18th, 1897.

my friend Dr. W. D. Robinson, thirty-six hours after an instrumental delivery. The patient had a very tedious labor, due to an occipito-posterior presentation and to an elongated and rigid cervix which had sustained an unavoidable bilateral laceration; and there was also a laceration of the perineum, which had been repaired immediately after labor. Within thirty-six hours following delivery the patient complained of chilly sensations, the temperature reached 104° F., the pulse was 120, and there were considerable pain and tenderness in the lower abdomen, especially in the region of the right broad ligament. The uterus was involuting in a normal manner; the lochial discharge was not offensive.

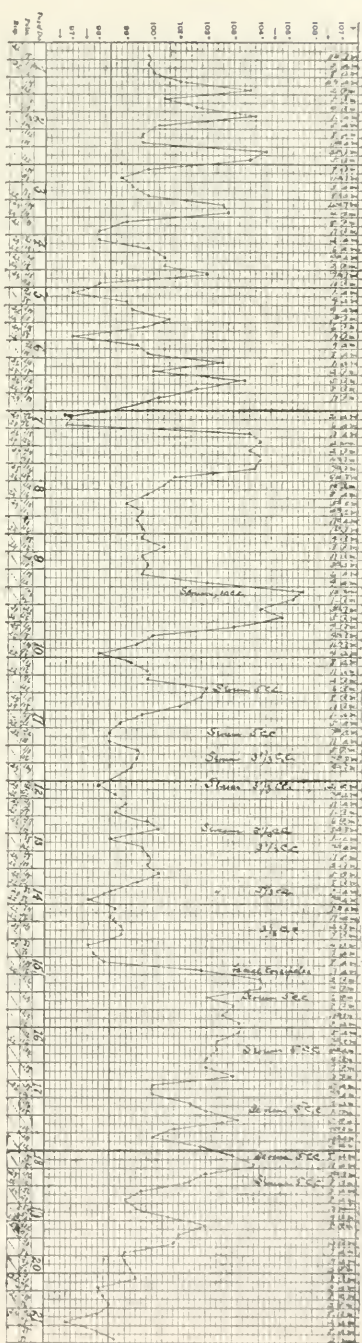
Inspection of the vagina and cervix with an electric headlight and through a speculum showed the lacerated areas covered with a pseudo-diphtheritic exudate.

The perineal stitches were removed, and all raw surfaces were thoroughly douched with bichloride solution, then cleansed with peroxide of hydrogen, and cauterized with a solution of silver nitrate one drachm to the ounce, and dusted with iodoform. A fifteen-grain iodoform suppository was inserted between the lacerated lips of the cervix. The interior of the uterus was not explored nor douched at this time, for fear of carrying infection into the uterine cavity. Two days later an intrauterine douche was given after thorough disinfection of the vagina and cervix. The return flow was clear, and there was no indication that the interior of the womb had been invaded by the septic process.

The usual constitutional treatment was directed. Alcohol in large quantities, predigested liquid food, given in as large quantities as the stomach would tolerate, and a moderate amount of quinine and strychnia were administered. Besides the daily disinfection of the cervix and vagina, carefully executed by myself and Dr. Robinson, the vagina was douched each day with a two per cent creolin solution.

The above-mentioned treatment was continued throughout six days, with practically no improvement in the patient's general condition; and the local appearances, while slightly improved, continued much the same, so far as concerned the swelling, the exudate, and the angry red appearance of the lacerated and infected areas. The base of the right broad ligament, into which the laceration extended, was also infiltrated, thickened, and very tender. By combined examination the tubes and ovaries appeared not to be involved in the violent septic inflam-

mation that had attacked the vagina, the cervix, and the base of the right broad ligament. The uterus was movable, and involution was only slightly delayed. The temperature chart indicates the fluctuations in the temperature curve so characteristic of lymphatic infection—the form of infection probably present in this case. Uterine phlebitis could be excluded by the early appearance of the fever, by the pain and tenderness in the region of the pelvis, by the facts that the chills were not so severe nor so frequently repeated and that the remissions in fever were not so marked. Furthermore, the lesions of the cervix and vagina, and the absence of metastases as the case progressed, made the diagnosis of lymphatic infection quite probable. After six days of the above-mentioned local and general treatment the patient not only had not improved, but was distinctly worse. Vomiting supervened. Profound depression and the peculiar appearance of grave septic absorption were present to make the outlook gloomy. The temperature was $105\frac{1}{2}^{\circ}$ F. and the pulse 144. At my suggestion ten cubic centimetres of Marmorek's anti-streptococcic serum were injected. That treatment was advised because the clinical appearances of the case indi-



cated lymphatic infection in all probability due to streptococci—a belief further strengthened by the fact that the patient had been treated by Dr. Robinson during the past eleven years for nine attacks of facial erysipelas, the last attack, however, having occurred two years before her confinement. The urgency of the case, and the absence of available means to make a bacteriological examination of the secretions of the cervix and vagina, prevented a bacteriological study of the case prior to the injection of the serum.

The effect of the serum was very marked. Within twelve hours the temperature fell to 98° F. and the pulse to 96, these changes being accompanied by constitutional evidences of a pronounced reaction. I have repeatedly observed a similar crisis in septic cases which thereafter continued to improve, and therefore the remarkable improved condition of the patient I was unwilling to attribute to the serum until an examination of the vaginal and cervical lacerations made it plain that the serum had been the factor in the improvement. The infiltrated cervix and vagina had lost the inflammatory characteristics which had been present the preceding day; the cervix was reduced to one-third its size; the pseudo-diphtheritic exudate and the swelling and induration had almost wholly disappeared. The local changes that had occurred over night simply astonished me beyond measure, and Dr. Robinson remarked the analogy between the phenomena observed in our patient and those apparent in some cases of diphtheria after an injection of diphtheria antitoxin.

The day following the administration of the first dose of serum five cubic centimetres were injected in the morning, and again at night when the temperature had risen to 102° F. The next morning the temperature was 98 $\frac{3}{4}$ ° F. and the pulse 90. The patient's general appearance, her color, and her appetite at once began to improve. The very marked nervous irritability, the insomnia, and the local pain and tenderness disappeared. The change in the appearance of the lesions in the vagina and the cervix made it unnecessary to continue the daily disinfection. Throughout the succeeding four days the pulse and temperature remained below 100, and during that time two daily doses of three and one-third cubic centimetres of serum were given. Six days after the first dose of serum was injected, and despite the fact that during that period the patient had received forty cubic centimetres of the serum and

seemed to be getting well rapidly, the temperature suddenly arose to 104° F., and a facial erysipelas, presenting the classical clinical signs of that disease, appeared. Repeated stab cultures were made from the infiltrated area of the face, from the uninvolved surface of the skin about one-fourth of an inch beyond the infiltrated area, and even from blebs that soon formed at the muco-cutaneous junction at the angle of the mouth. These cultures, six in number, were submitted to Dr. A. C. Abbott at the city bacteriological laboratory, and in each instance the streptococcus could not be found. The clinical signs, however, of erysipelas were so characteristic that the diagnosis could not be in doubt, although the bacteriological proof was wanting. I have learned that bacteriologists consider the finding of the streptococcus in stab cultures by no means necessary to establish the clinical diagnosis of erysipelas. Facial erysipelas being a lymphatic infection, the streptococcus often cannot be found in cultures made from a drop of blood obtained by puncturing the skin.

The appearance of facial erysipelas in this patient so soon after the serum apparently had antagonized and controlled the pelvic infection, at first seemed remarkable and tended to shake my faith in the efficiency of the serum, until I learned that the duration of the immunity produced by antistreptococcic serum is known to be very variable. Diphtheria antitoxin is said to be protective for a period of about six weeks, yet there are frequent exceptions to that rule. I have been reliably informed that laryngeal diphtheria has developed and caused death within that period in patients whose faucial diphtheria had apparently been cured by the antitoxin. Furthermore, the clinical fact that one attack of facial erysipelas not only does not immunize the patient against subsequent attacks, but on the contrary predisposes to other attacks, indicates that the antitoxin formed by Nature during the course of erysipelas soon loses its protective power.

It certainly is reasonable to believe that the serum injected into my patient was consumed in antagonizing the toxin present and for that reason could not protect her for a longer period, and thus the attack of facial erysipelas was possible. On that hypothesis it was decided to renew the serum injections, and the results from twenty cubic centimetres, given in two daily doses of five cubic centimetres each, were remarkable. The infiltration and redness rapidly disappeared, the spread of the

disease was arrested, and in five days the temperature and pulse reached the normal by lysis, and not by crisis as is usual in erysipelas.

The true value of antistreptococcic serum for the treatment of puerperal infection can only be determined by further clinical and bacteriological investigations, and there are many facts already determined that indicate for it only a limited field of usefulness. At the very outset of an investigation of this subject by the clinician he encounters the uncertainty of knowledge concerning the manner in which an antitoxin is supposed to be efficacious. Furthermore, in the treatment of individual cases he is confronted with the difficulty of determining whether his patient is the victim of infection due to a single or to a combination of several varieties of micro-organisms.

The employment of serum therapy will necessarily be experimental until we learn (a) whether a special serum, by some peculiar action upon the body cells, is capable of inhibiting and destroying the micro-organism when present in small or in large numbers, or (b) whether the serum is only a chemical antidote to the toxin produced by the micro-organism, or (c) whether the serum is endowed with both properties. Until those problems are settled, and until reliable sera have been prepared from other micro-organisms than the streptococcus that are known to be the cause of puerperal infection, the clinician cannot apply serum therapy to his cases in a scientifically exact manner.

The infectious disease in which an antitoxin treatment has exhibited its greatest curative value—namely, diphtheria—has, in its clinical and pathological manifestations, many phenomena which indicate the probable failure of an antitoxin treatment for most cases of grave puerperal infection. Vaughan¹ has recently remarked that the diphtheria antitoxin does not destroy the Klebs-Löffler bacillus; that it antagonizes and antidotes the toxin produced by the bacillus until, and within a comparatively short period, the diphtheria bacillus naturally loses its virulence for the individual attacked by it. In diphtheria there is not a widespread systemic infection with bacilli throughout the lymph or venous channels.

In the grave forms of puerperal infection the opposite obtains. The infecting agent does not lose its virulence for the individual attacked, and there quickly follows rapid multiplication of the germs in the veins and lymphatics. The streptococcus

¹ Medical News, February 27th, 1897.

is very frequently the infecting agent, and bacteriologists are by no means certain that that organism produces a toxin. If the serum cannot destroy the activity of micro-organisms, then it cannot have a curative value, for sooner or later the patient must be overwhelmed. If, however, it can be or has been demonstrated that the serum actually destroys or inhibits the growth of the micro-organisms, then its prompt and early employment in a case with a bacteriological diagnosis, combined with local disinfection, should be the ideal treatment. While these problems are being determined by pathologists it is our duty not to forsake old methods for this new method of treatment, and not to lose sight of the fact that local antiseptic, intrauterine irrigation, the curette, or other surgical means in proper cases, and the free use of stimulants, have saved many lives. Furthermore, it must always be remembered that the use of a serum is by no means free from danger and therefore it is to be used with caution.

The experience with the case I have described, and my knowledge of the results obtained by others who have employed the serum treatment of puerperal infection, have induced me to formulate the following rule to guide me in treating cases I may see in the future.

While a careful and early bacteriological study of the secretion from infected areas in the vagina, the cervix, or the endometrium is in progress, the patient should be subjected to the usual antiseptic and stimulating treatment. The results claimed for hyperleucocytosis induced by nuclein and for subcutaneous injections of normal salt solution warrant the employment of those remedies as an adjunct to the general treatment. Finally, should the bacteriological study of the case demonstrate the presence of streptococci, Marmorek's or other equally reliable serum should be administered in doses of at least ten cubic centimetres daily for three days. The local antiseptic treatment meanwhile should not be neglected. When the streptococcus is found unassociated with other micro-organisms, it is my conviction that a reliable serum, employed early and before widespread and systemic infection has occurred, often will be efficacious. It is a pertinent fact, however, that there are some varieties of streptococci that are not controlled by Marmorek's serum. On the contrary, when the infection is mixed in character the antistreptococcic serum will avail little, and when streptococci are not present it will be useless. It is possible that other sera will some day be available for the treat-

ment of infection due to other micro-organisms frequently found in puerperal infection—for example, the staphylococci and the bacillus coli communis. Should that be the case the inherent difficulties surrounding reliable bacteriological investigations of puerperal patients will necessarily limit the usefulness of serum therapy in the hands of the average physician, unless future investigations provide us with a “mixed serum” capable of antagonizing the micro-organisms commonly associated in the grave forms of puerperal infection.

The delay incident to a careful bacteriological examination of the secretion of the puerperal uterus, when a culture test is employed, will often be great and will permit the infection to spread, sometimes beyond our control. A cover-slip preparation offers a more rapid means of determining whether or not streptococci are present in large numbers. My friend Dr. H. D. Beyea has had satisfactory experience with that method of examination to determine the necessity for drainage in the celiotomies at the clinic of the University of Pennsylvania. His reply to a letter of inquiry as to the availability of that method in puerperal cases is that “if the secretion is taken by means of a sterilized platinum wire from any point above the external os, and a cover glass be prepared and stained with carbol-fuchsin or an aqueous solution of methylene blue, the diagnosis of streptococcic infection would be more positive than by culture. The cover glass would be more apt to show the amount of streptococcic infection. Particularly would it be of advantage where there exists a mixed infection, as the culture might early show an abundant growth of staphylococci but only a few colonies of streptococci, and yet the dominant infection in the patient being a streptococcus infection. Another very important advantage of the cover glass would be that the diagnosis could be determined in ten or fifteen minutes.” There should be either bacteriological or, as in my case, very strong clinical evidence of streptococcic infection before resorting to the employment of antistreptococcic serum in the treatment of puerperal sepsis.

500 NORTH TWENTIETH STREET.

SEPTICEMIA FROM SELF-INDUCED ABORTION.

SERUM INJECTION; AUTOPSY.¹

BY

GEORGE ERETY SHOEMAKER, M.D.,

Gynecologist to the Methodist Hospital,
Philadelphia.

THE following case of puerperal septicemia was characterized by low temperature, profound intoxication, and uremia. Autopsy, with bacteriological and tissue examinations, are reported.

K., aged 21 years, servant, single, was admitted, profoundly ill, to the medical ward of the Methodist Hospital. She was vomiting incessantly, presented no marked abdominal symptoms, and, as she gave a false history, was treated for several days symptomatically. When at length a history of attempted abortion was obtained she was transferred to the gynecological service of the writer. Patient had had one self-induced miscarriage at five months three years before, when she was reported to have been extremely ill. She had been well up to ten days before coming under observation, when, having missed two periods since December 18th, 1896, she considered herself pregnant, and, repeating her former experience, had attempted to introduce into the uterus a bone removed from an old corset, causing a free escape of blood. On admission to the hospital the patient was evidently very ill, vomiting all nourishment and requiring from the first rectal feeding. Temperature was 99.2° on admission, but immediately fell below normal, where it remained until her death ten days later, except when temporarily raised slightly by antistreptococcus serum injections. On admission she was much jaundiced, complained of pain in legs and arms, and was generally hyperesthetic; vomited every few minutes a greenish-brown or black fluid; a copious discharge of blackish fluid escaped from the nose; the lips and tongue were dry and fissured; there was a profuse and offensive yellowish vaginal discharge. This condition continued practically unchanged until her transfer to the writer's care, when the following additional notes were made:

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 18th, 1897.

February 23d, 1897: Patient rational, retching and vomiting occasionally, face flushed, expression dull, tongue small, brown thin coat, slight jaundice of whole body; patient rather apathetic, admitted no pain or tenderness on pressure over the lower abdomen, which was but slightly distended by gas and showed no edema or discoloration. The pulse was quick, regular, jerky, 96. There was a decided urinous odor of the breath, a highly offensive yellowish watery vaginal discharge, no bleeding. There had been three loose stools in the preceding night. The urine had been retained for eleven hours, and the catheter now drew nineteen ounces of dark-brownish, bile-stained urine containing albumin and a little pus, but no casts were reported. The temperature was 98.2°. The breasts showed characteristic signs of pregnancy. The vaginal mucous membrane was thickened, congested, from purplish blue to purplish red in color, with minute capillary hemorrhagic areas. A grayish patch of false membrane, half an inch in length, on the anterior wall of the vagina; an abrasion behind the fourchette. The cervix was reddened around the os for a quarter of an inch; a muco-purulent plug in the opening. Uterus three inches in length, somewhat softened, retroverted below promontory, easily anteverted. No disease of ovaries or tubes demonstrable. No thickening of the broad ligaments, abdomen not tense, no signs of intrapelvic inflammation.

After thorough cleansing of the field with green soap and bichloride of mercury, the gray patch on the anterior wall was touched with pure carbolic acid and the cervix dilated. The uterine cavity was practically empty, but the cautious use of the dull wire curette brought away small pieces of placental tissue, one of which appeared gray as from infection. Tincture of iodine applied, and uterine canal packed with iodoform gauze; vagina also packed. Patient was returned to bed and normal salt solution injected under the skin of the abdomen. Half an ounce of whiskey in four ounces peptonized milk was ordered by enema every four hours; strychnia one-thirtieth of a grain every four hours; ten cubic centimetres of Marmorek's antistreptococcus serum were injected into the abdominal wall. The injection of the serum was followed by a rise in temperature of 1°. An hour and a half later a copious papular eruption with intense itching appeared, most abundantly on the extensor surfaces of the arms and forearms, less prominently on the buttocks, the front and outer surfaces of the thighs, legs, and back, a few points on the upper part of the chest,

none on the abdomen, flexor surfaces, hands or feet. In a few hours some of the papules became minute pustules. On the following day the patient was somewhat stronger, but no marked change had occurred except diminution of the vomiting. The discharge from the nose was still almost black, as was the matter vomited. No sign of peritonitis; patient apathetic, but answered all questions intelligently. There had been several thin stools. The pulse ranged about 100 and was weak, temperature 97°; no tympany. Next day the packing was changed and five cubic centimetres of serum again used. This was followed by a rise of temperature to 100.3°, pulse 104. The same evening the temperature dropped to 95.2°; there were diarrhea and scanty urine. February 26th, three days after coming under the writer's observation, the patient died rather suddenly. For twelve hours preceding death only three and a half ounces urine were secreted. There were no convulsions, but slight twitching of the limbs. There was no coma, the patient answering questions rationally until within a few minutes of her death. The post-mortem examination was made four hours later by Dr. Henry W. Cattell, whose report is as follows:

“Five feet four inches in height; weight, one hundred and thirty-four pounds. Petechial eruption on arms and limbs, none on face. Right side of face and neck swollen. Marks of hypodermatic to the right of umbilicus, showing a tumefied mass with hemorrhagic areas, and southwest of right nipple. Body very anemic. Slight post-mortem rigidity and lividity. Branny desquamation around hips; fluid exudes from breast on pressure. Disagreeable, peculiar fetid odor in room. Sordes on mouth; gold fillings in teeth; bluish markings below eyes. Anxious expression on face. Bruise above wrist, extensor surface right forearm. Section of tissues bloodless; blood watery. Omentum covers intestines; lower portion small intestine of a grayish, peculiar slate color, with undue prominence of blood supply, showing probable increased virulence of the bacillus coli. Mesentery and sigmoid show dilated vessels, and in places small pin-point and pin-head, grayish areas, probably remnants of recent hemorrhages. No appendicitis. Left lung small; slight congestion at posterior region; it is anemic and somewhat emphysematous along margins. Few adhesions on right side. Lung on right side of same character. Calcified nodule near apex surrounded by fibrous tissue and containing inspissated material. Heart normally situated, of normal size;

shows no hemorrhages in the pericardium; valves normal. Heart muscle not softened. Spleen slightly enlarged; supernumerary spleen under surface. Malpighian bodies plainly visible, filled with dark-colored blood which readily oxidizes on exposure to air; consistence good. Left kidney enlarged; outside surface smooth, and distinct uriniferous odor. Capsule strips readily. Kidney a peculiar mottled dark-brown and red color; somewhat enlarged and thicker in its anterior posterior diameter than normal. Some lighter-colored areas more of a yellowish character, though still of a brownish yellow. One of these yellowish areas is surrounded by a hemorrhagic area, and might possibly have broken down had the patient lived long enough. On section, cortex slightly increased in amount; affords a striking contrast to the dark grayish-red pyramids. Consistence of kidney good. Right kidney same character. Liver enlarged, dark *café-au-lait* color. Gall bladder over-distended with dark-colored, viscid bile. Toward the fimbriated extremity the left tube becomes more convoluted; just beneath the fimbriated extremity is a small parovarian cyst the size of a marble. There are no adhesions of the adnexa of this side of the body. In the portion of the ovary nearest to the uterus is a swelling the size of a pigeon's egg, containing a thickened connective-tissue spot at its most prominent portion. On opening this mass a sanguineous pus exudes, which quickly becomes pure pus of a greenish-yellow color. The membrane next to the ovary readily peels off, leaving a red and angry surface. This membrane is about one-sixteenth of an inch thick, well organized and yellow. On the inside it more closely resembles a pyogenic membrane. It is possible that we are dealing with a corpus luteum which has become infected by micro-organisms from uterus and vagina, just in the same manner as we may have a peritonitis by the organisms passing up along the oviduct and leaving no signs of inflammation along their course. The vessels in the broad ligament are in no way affected. In no place has the mass ruptured. In this ovary was a small corpus luteum with a minimum amount of organized clot in the centre, the whole not being larger than a pea. The yellowish portion on the outside bears a striking resemblance to the membrane in the larger swelling. On opening the left oviduct a minute drop of brownish fluid escapes, probably remnants of blood. The right horn of the uterus appears larger than the left. Around the external os and in the vagina is a yellowish organizing membrane. Odor of iodoform; bloody mucus from cervix. Os admits lead pencil. The uterus is

well contracted. On the outside of uterus are some yellowish, irregular patches, showing involution. Possible placental remnants, or at least attachments of placenta, in the right horn; possible penetration of endometrium and adjoining tissue to the left, about three-quarters of an inch above the os. Size of uterus, three by two and one-half inches. Broad ligament of right side and adnexa normal. Abrasion on the posterior wall of uterus.

“*Microscopical Examination of Kidney*—There is a distinct glomerulo-nephritis. The capillaries are distended in places, even expanding the capsule. Rupture of capillaries has taken place at some points, and a brownish mass with obliteration of the nuclei of the endothelial and epithelial cells is seen. The epithelial cells of the primary convoluted tubules are in places undergoing necrosis. A well-marked round-celled infiltration is to be seen in some of the fields in this neighborhood. In the pyramids there is no change in the epithelial cells, the tubules being less numerous and considerable connective tissue occupying the space between them. No tube casts are seen except in the upper portion of the tubules.

“The liver cells over large areas do not stain readily and appear much more homogeneous and granular than normal. Except for the recent cloudy swelling, the liver is normal.”

Cultures were made and submitted to the Bacteriological Department of the Board of Health, as follows: From gray piece of placental tissue—report, “overgrown with contaminating organisms, no streptococcus recognized” From cervix uteri—report, “no diphtheria” Streptococcus not reported upon, and specimen without value therefore. At the autopsy careful cultures were made by Dr. Gillespie, from the Board of Health laboratory. The cultures from the heart, kidneys, and spleen showed no growth after four days. Cultures from the infected corpus luteum in the ovary showed in twenty-four hours a pure culture on blood serum, from which plates were made. The organism proved to be probably the colon bacillus. No streptococcus was found in the cultures. Many thanks are due for these cultures to Dr. A. N. Stewart.

Specimens for direct examination of living blood and mucus were unfortunately lost in transportation.

Of interest was the entire absence of peritonitis. At the autopsy the peritoneum was throughout glistening and without adhesions.

A MARKED RESULT IN THE TREATMENT OF PUERPERAL
SEPSIS OBTAINED BY THE USE OF SERUM:

ALSO, TWO FAILURES OF THE SAME METHOD OF TREATMENT.¹

BY

EDWARD P. DAVIS, M.D.,
Philadelphia.

THE first case under consideration was that of a young colored woman, aged 19 years, who came to the Polyclinic with anomalous nervous symptoms thought to be hysterical; she applied for treatment in one of the out-patient departments, but, becoming faint and collapsing, was put to bed and examined. She was found to be suffering from an incomplete abortion, a portion of the ovum or its appendages presenting in the cervix. There was very moderate hemorrhage, but a temperature of 105° F. and a very rapid and feeble pulse. I saw her a few hours afterward when she was apparently dying of septic poisoning. Her prostration was so extreme that it was thought unsafe to completely anesthetize her. Ether was given to partial anesthesia, and a decomposed placenta removed with a dull curette, and the uterus thoroughly douched and packed with iodoform gauze. There was no swelling of the abdomen, no sign of a collection of pus, but a profound septic intoxication. The temperature fell somewhat after the emptying of the uterus, but the patient continued alarmingly weak until the following morning, when five cubic centimetres of Marmorek's serum were injected, and twelve hours later a second five cubic centimetres were injected, making ten in all. The effect of the serum was immediate and remarkable: the pulse of the patient increased slightly in frequency, but gained very greatly in vigor and tension. Her mental and nervous condition was wonderfully improved, and this gain was followed by no substantial relapse. Although the patient was in a weak condition for several days, she progressed steadily, and ultimately made a complete recovery.

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 18th, 1897.

A careful review of her history disclosed the fact that she had been several months advanced in pregnancy ; that she had begun to abort seventy-two hours before entering the hospital ; that she had suffered profuse hemorrhage, and that the ovum had been expelled in a mass of blood clot. She had been under the care of ignorant negro friends, and, not gaining in strength, had been finally brought to the hospital. She was undoubtedly infected at the time of admission. While her temperature had begun to fall before the administration of the serum, still the very remarkable gain in her strength followed immediately after its use. No untoward result followed the injection, and it was apparently a powerful antidote to the poison which was depressing her.

In two succeeding cases in the Philadelphia Hospital the use of serum was without result. The first of these was that of a young woman, apparently of sound constitution, who had been delivered by forceps of a child ten days before admission to the hospital. A laceration of the genital tract had occurred, which had been closed by suture ; this had become infected, the stitches had been removed, and granulating surfaces were present. On admission the patient's temperature was 104° , her pulse rapid, her lochia red and not offensive, the uterus large but not sensitive, and the abdomen neither sensitive nor swollen. No collection of fluid could be recognized in the pelvis. Her uterus was thoroughly cleansed and she was given tonics and stimulants. This treatment had no effect upon her general condition, and accordingly serum was injected in doses of ten cubic centimetres twice in twenty-four hours for several days. Shortly after her admission she developed thrombosis of the veins of the right lower extremity just below the brim of the pelvis. It could not be observed that the injections of serum produced the slightest effect. The patient failed steadily and died exhausted. The injections produced no perceptible reaction in either pulse or temperature. An autopsy could not be obtained.

The second of the unsuccessful cases was that of a strong young colored woman who was admitted to the hospital some time after delivery, profoundly jaundiced and having fever. Her history prior to admission could not be accurately obtained. She had been recently delivered of a child and had become jaundiced. In this case, while the uterus was large, the lochia were not offensive nor could any collection of fluid be detected

in the pelvis. The abdomen was neither swollen nor sensitive. The patient developed very active mania ; her temperature was uninfluenced by cold packs or by large doses of alcohol ; several injections of serum, ten cubic centimetres each, were made without the slightest apparent result. This patient gradually failed and died of exhaustion. No autopsy could be obtained.

The tendency of modern therapeutics in the treatment of puerperal sepsis is now largely in the direction of constitutional treatment of a stimulant nature. The comparison of the mortality of these cases when treated by cleansing the uterus early, with the free use of alcohol and nutritious food, shows a very favorable result, the mortality varying from ten to twenty-five per cent. Operative procedures are generally undertaken too late, or, if applied early, often leave the operator in doubt as to the absolute necessity of the operation. If the production of artificial immunity by immunizing serum could be applied early in a case of sepsis it would seem clearly indicated, and, in accordance with our knowledge of immunity, this condition must be repeatedly secured to enable the patient to permanently destroy infective germs ; this would call for repeated injection with serum. If an artificial leucocytosis be added to our resources it is possible that a favorable result may be secured in these cases by the prompt use of both these methods of treatment. To make an exact application of serum therapy a positive diagnosis must first be made, not only by demonstrating the presence of germs, but also by control experiments with their cultures. This is impracticable in most cases. Reasoning by analogy from the action of other serum, it is evident that this method of treatment must be employed early in connection with other stimulating agents. We may then hope for a good result in a small number of cases which are seen promptly.

250 SOUTH TWENTY-FIRST STREET.

ANTISTREPTOCOCCIC SERUM IN A CASE OF ACUTE
PUERPERAL LYMPHANGITIS AND PHLEBITIS.¹

BY

J. M. BALDY, M.D.,
Philadelphia.

On the morning of February 8th I was called to see a young woman, 29 years of age of fine general health in her second childbirth with the following history: January 29th (nine days before) she had been delivered of a healthy child at full term by a normal labor. Her condition was apparently normal until the fifth day when the temperature became elevated registering 101° , the pulse increasing to 108 beats to the minute and the lochia having an odor; respirations normal. Her physician at this time and in view of these symptoms curetted the womb. I might say that it is by no means certain that these symptoms had not been gradually developing for several days previous as no records were kept and no exact observations seem to have been made in the case. After the curettage the uterus was washed out once daily with an antiseptic solution. No great amount of material was removed by either the curette or the irrigations.

When I saw the patient February 8th (the ninth day after her confinement) she had a temperature of 103° and a pulse of about 120 beats to the minute. She was perfectly clear and rational, and was in about the condition apparently in which I have seen a hundred or more puerperal cases who have recovered without a great deal of difficulty. In other words, I did not consider her in a particularly dangerous condition. An examination of the pelvis showed an enlarged uterus, about the size one would expect in a woman nine days after delivery, freely movable; appendages normal in every respect; infiltration in both broad ligaments, extending from the uterus to the pelvic walls. The case was clearly one of puerperal phlebitis or lymphangitis, or both.

I advised no further surgical procedure, the irrigations continued and the usual stimulating treatment of quinine, strychnine,

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, March 18th, 1897.

nia and alcohol in full doses. The ordinary bodily functions were carefully looked after.

On the morning of February 10th (two days later) I was again sent for, and found the patient in much the same condition excepting that she had been delirious all night and was so at the time I saw her. Her temperature and pulse were, if anything, somewhat higher: temperature 104° .

I had been talking with Dr. Norris about the patient he has reported to-night, in which he seemed to have gotten such a startlingly good result from the use of antitoxin, and was from his report induced to recommend its use in this case. At 1 o'clock on the same day (February 10th) ten minims of the serum were injected, and again at 10 o'clock in the evening ten minims more. The patient died at 2 o'clock, four hours after the second injection. The only effect of the serum was an abrupt rise in the temperature. At 4 o'clock, three hours after the first injection, it registered $106\frac{2}{3}^{\circ}$: later it registered considerably higher. No rash appeared, and she was conscious to the last, her delirium having left her.

I had seen the patient at about 9 or 10 o'clock in the morning, and did not consider her critically ill at that time, although fully realizing the seriousness of the case, and so warned her husband. Still, I did not think her in any immediate danger. At 2 o'clock her husband saw me at my office, and arranged with me to have her moved to the hospital, as she could not be as well cared for at home as he wished. By 4 or 5 o'clock I received a telephone message from him to the effect that his wife was so much worse that he and his physician thought it best to wait until the next day, in order to see whether or not she would rally sufficiently to be moved. She died before the next day.

Something of a sudden nature happened to her. What was that something? Immediately after her first injection her temperature runs up to $106\frac{2}{3}^{\circ}$, goes still higher after the second injection of a like quantity and she dies within a few hours when she was apparently not critically ill.

Did the injections kill her, or was it simply a coincidence and an example of a not unknown manner of death due to puerperal lymphangitis and phlebitis? I shall in future use the serum, if at all, with the utmost caution and distrust.

No opportunity arose for a bacteriological examination.

PUERPERAL FEVER TREATED WITH ANTISTREPTOCOCCIC SERUM.¹

A SERIES OF TWENTY-ONE CASES COLLECTED FROM THE "LANCET" AND FROM THE "BRITISH MEDICAL JOURNAL" FOR 1896.

BY

JOHN B. SHOBER, A.M., M.D.,

Obstetrician to the Philadelphia Hospital; Gynecologist to the Howard Hospital;
Assistant Surgeon to the Gynecean Hospital
Philadelphia.

	No. of case.	Streptococci found.	Source of serum supply.	Day in injections were commenced.	Amount of serum used.	Source of infection.	Result.	Remarks.
Chrobak. Lancet. Jan. 4th 1896 (Vienna correspondent).	1	.....	.....	.....	25 c.c.	.....	Re- covered.	He believes the serum to be harmless.
Gouldard. Brit. Med. Jour., March 17th, 1896	2	.....	Marmorek.	Thir- teenth.	12 c.c.	Lac. perin.	"	10 c.c. first day; 2 c.c. second day.
Press. Med., Nov. 30th, 1895.)	3	Yes..	"	Fourth ..	40 c.c.	"	Died. ...	10 c.c. each day for four days General improve- ment followed. Uncon- trollable vomiting devel- oped on tenth day. Death on eleventh day.
Coleman and Wakeling. Brit. Med. Jour., Sept. 12th, 1896, page 647.	4	Yes	Burrows and Well- come.	Third....	Large..	Abrasion on finger.	Re- covered.	Septicemia in a physician who had attended a fatal case of puerperal fever. 2 c.c. and 10 c.c. doses used every fourth and eighth hour over a peri- od of six weeks.
McKerron. Brit. Med. Jour., Oct. 10th, 1896, page 1033.	5	...	Pasteur Institute.	Fifteenth	30 c.c.	Perineal in- cision; su- ture.	"	Three injections, 10 c.c. each, in four days.
	6	...	"	Twelfth.	30 c.c.	Midwife....	Died.....	Three injections, 10 c.c. each, in three days.
	7	.....	"	Seventh.	30 c.c.	Midwife..	Re- covered.	Three injections, 10 c.c. each, in two days.
Butin. Brit. Med. Jour., Oct. 3d, 1896 Epitome. page 54.	8	...	Marmorek.	Seventh..	90 c.c.	Not given..	"	Five injections; slight ery- thema and transient arthralgia followed.
	9	.....	"	First....	Not stated	"	"	Rapid recovery. Tempera- ture and general con- dition greatly improved after each injection.
Adam. Brit. Med. Jour., Dec. 26th, 1896, page 1825.	10	.....	Pasteur In- stitute; al- so Bacteri- ological Institute, Lyons.	Eleventh	107 c.c.	Lac. periu.	"	Lyons serum gave the best result. Recovery from septicemia follow- ed by enteric fever; re- covery.

¹ Read before the Section on Gynecology, College of Physicians of Phila-
delphia, March 18th, 1897.

	No. of cases.	Streptococci found.	Source of serum supply.	Day injections were commenced.	Amount of serum used.	Source of infection.	Result.	Remarks.
Davies. Brit. Med. Jour., Dec. 19th, 1896, page 1774.	11	.....	Burrows and Wellcome.	Seventh..	50 c.c....	Lac. perin.	Died.....	Died of pneumonia on tenth day.
Leask. Brit. Med. Jour., June 20th, 1896, page 1500.	12	....	Burrows and Wellcome.	Eleventh	4 c.c.....	Lac. on vaginal wall.	Recovered.	Temperature fell from 105° F. to 100° F. after first injection.
Kennedy. Lancet, ii., 1895, page 1106.	13	.....	.....	Nineteenth.	85 c.c..	.....	"	Injections given in two doses on two successive days, 40 c.c. and 45 c.c.; decided effect on temperature. Recovery slow.
M. Charrin. Lancet, April 25th, 1896 (Paris correspondent).	14	.....	Marmorek.	.....	.....	.....	"	Reported Feb. 23d, 1895, to Société de Biologie.
M. Roger. Lancet, April 25th, 1896 (Paris correspondent).	15	.....	Not stated.	First ....	.....	.....	"	
Williams. Brit. Med. Jour., Oct. 31st, 1896, page 1285.	16	.....	Pasteur Institute.	Eleventh	30 c.c....	Lac. perin.	"	10 c.c. first day; 20 c.c. second day.
	17	.....	British Institute of Preventive Medicine.	Eighth..	60 c.c....	"	"	30 c.c. on eighth day; 30 c.c. on eleventh day. Pneumonia followed.
	18	Yes..	"	Fourteenth.	35 c.c....	"	"	Recovery rapid.
	19	.....	"	Fourth ..	60 c.c....	Septic vagina.	"	30 c.c. on fourth day; 30 c.c. on seventh day. Abortion third month. Vaginal douche not given.
	20	..	"	Seventh..	28 c.c....	Lac. perin.	"	One dose 28 c.c.
	21	.....	"	Fourteenth.	60 c.c....	Midwife....	Died.....	No effect noticed from serum.

The cases comprising this series were collected from the *Lancet* and *British Medical Journal* for the year 1896. It was thought best to omit four fatal cases reported by Vinay,¹ but included by Williams² in his series of eight collected cases, because in two cases the injections were begun so late that no conclusions can be drawn as to the value of the drug, and in the other two there were organic lesions which doubtless determined their fatal issue. In the two latter cases, however, the serum undoubtedly had a beneficial effect upon the temperature and upon the general condition of the patients. Also, an unsuccessful case reported by T. C.³ has been omitted, on account of the late use of the serum.

¹ Lyons Méd., January, 1896, p. 109.

² British Medical Journal, ii., 1896, p. 1285.

³ Id., July 18th, 1896.

M. Charpentier¹ has collected 40 cases of puerperal septicæmia treated by antistreptococcic serum in the different maternity departments of the Paris hospitals and in private practice. There were 22 recoveries and 17 deaths; mortality, 42.5 per cent. Deducting 5 cases treated *in extremis* and one (1) where the results were vitiated leaves a mortality of 35.59 per cent. Bacteriological examinations were made in 25 instances; streptococci were found in 16 (9 recoveries, 7 deaths), associated with staphylococci or bacterium coli in the remaining 9 (5 recoveries, 4 deaths). In no case was the serum trusted to exclusively. Intrauterine medication and vaginal douches were employed in all. Various sequelæ were noted, such as urticaria, erythema, pruritus, and other symptoms of a nervous order. M. Bar and M. Tissier reported 13 well-studied cases with 6 deaths. Charpentier concludes that we cannot rely on the serum after the puerperal infection has made much progress, any more than on other and better known methods, and that when intrauterine treatment is applied at the commencement a good result will always follow.

A study of the 21 cases collected in the accompanying table is much more encouraging. There were 17 recoveries and 4 deaths, a mortality of 19.04 per cent. This is a decided improvement over the mortality reported by Charpentier, and may be accounted for, perhaps, by the increased efficiency and better quality of the serum used and perhaps a better selection of cases.

Marmorek's serum was used in 5 cases, 1 death; serum from the British Institute of Preventive Medicine in 5 cases, 1 death; serum from the Pasteur Institute in 5 cases, 1 death; from Burrows and Wellcome in 3 cases, 1 death; the Lyons serum was used in 1 case, and in 4 cases the source of the serum is not mentioned.

The dose seems to vary with the character and severity of the attack. The average single dose was about ten cubic centimetres. The total quantity used in each case ranged from four cubic centimetres to one hundred and seven cubic centimetres and over. The immediate effect upon the general condition and the temperature was, with one exception—Case 5 in Williams' series—always beneficial.

Bacteriological examinations were made in only three cases, and in each the diagnosis of streptococcic infection was confirmed. Uncontrollable vomiting and meteorism followed on

¹ Lancet, April 25th, 1896, Paris correspondent.

the tenth day in one case. Typhoid fever followed one successful case, and pneumonia and slight erythema followed two cases, one of which resulted fatally. Entrance of the infection could always be traced to lacerations of the perineum or uncleanly surroundings, and, in the case of the physician reported by Coleman and Wakeling, to an abrasion on the finger, which had become infected by attendance on a fatal case of puerperal fever. On the whole, this series speaks well for the effective and beneficial action of the serum. The percentage of mortality is certainly low.

In only three cases was a bacteriological examination made, but in each the streptococcus infection was found. All the other cases were typical of puerperal fever, and the diagnoses were made by careful observers. It seems, therefore, fair to presume that they were cases of streptococcic infection.

In order to obtain the best results it is of prime importance to secure a reliable serum. The case should be one of unmixed infection, and the injections ought to be begun immediately upon the onset of symptoms. It is highly important to apply intrauterine and vaginal medication in connection with the serum treatment.

112 SOUTH SEVENTEENTH STREET.

A CRITICAL REVIEW OF SEVENTEEN HUNDRED CASES OF ABDOMINAL SECTION FROM THE STANDPOINT OF INTRAPERITONEAL DRAINAGE.

BY

J. G. CLARK, M.D.,

Resident Gynecologist in the Johns Hopkins Hospital,
Baltimore, Md.

(With one illustration and three charts.)

PART II.

DRAINAGE IN CASES NOT PRIMARILY INFECTED.

DRAINAGE IN CASES WHERE INFECTIOUS MATTER IS SUPPOSED TO BE PRESENT AT THE TIME OF OPERATION.

POST-OPERATIVE OBSTRUCTION OF THE BOWEL FROM THE USE OF DRAINAGE.

FECAL FISTULA FOLLOWING DRAINAGE; VESICAL COMPLICATIONS PRODUCED BY DRAINAGE; POST-OPERATIVE HERNIA DUE TO DRAINAGE.

PREVENTION AND REMOVAL OF INFECTION WITHOUT THE
EMPLOYMENT OF DRAINAGE.

POSTURAL METHOD OF DRAINING THE PERITONEAL CAVITY.

SUBMAMMARY SALINE INFUSIONS AS A THERAPEUTIC AGENT
IN SEPTICEMIA.

CASES IN WHICH DRAINAGE MAY BE INDICATED.

METHODS OF DRAINAGE—ABDOMINAL, VAGINAL.

REPORT OF CASES TREATED BY THE POSTURAL METHOD OF
DRAINAGE.

DRAINAGE IN CASES NOT PRIMARILY INFECTED.

IN order to arrive at a clearer determination of the source of infection in the drained cases, I have divided them into two groups, the first containing those in which infection previous to operation is rarely present, such as abdominal tumors, cysts, and extrauterine pregnancy; the second including the inflammatory cases, such as pelvic abscess, pyosalpinx, acute and chronic salpingitis, and peri-oöphoritis. In the first class drainage was usually employed to control oozing from adherent surfaces and to remove collecting fluids.

Blood within the peritoneal cavity may be disposed of in various ways: it may be absorbed before it coagulates; it may coagulate and then be removed gradually by the disintegrating action of the leucocytes; it may become encapsulated, after which it is partially or wholly removed or becomes organized; or it may become infected and suppurate. Absorption takes place much more readily when the peritoneum is normal or only slightly injured, but even when an extensive local injury has occurred free blood may be taken up. This fact has been demonstrated by autopsies in cases dying a few hours or days after operations accompanied with free oozing.

If there has been excessive traumatism, especially in cases where the function of the peritoneum has already been impaired by disease, blood and serum may accumulate in dependent pockets and become encapsulated. Its subsequent disposal then depends upon whether it is infected or not. In addition to the antagonism manifested by the peritoneum to infection, the fact must not be lost sight of that freshly effused blood surrounded by living tissue does not lose its vital properties immediately, but is actively germicidal for some time, and it may be assumed that a large number of organisms are thus destroyed.

Of 100 undrained cases which I have reviewed where there were more or less extensive adhesions, only one case was complicated by the formation of a pelvic abscess after the opera-

tion; in 100 similar cases which were drained eight such sequelæ have occurred. This fact goes far toward proving that these coagula seldom suppurate if left to the care of even a disabled peritoneum.

The introduction of a gauze drain into a raw and bleeding cavity, while it may check the oozing, will invariably induce a free serous secretion, which is quite as dangerous, when it degenerates and becomes infected, as infected blood.

In Muscatello's experiments a great increase in the wandering cells occurred in the peritoneal cavity for the purpose of carrying the carmine granules into the lymphatic vessels; after abdominal operations where débris or infectious matter is present there is a similar increase in their numbers, and when the peritoneal fluid, containing myriads of leucocytes, is deflected from its normal channels of exit and is conducted outside through drainage, Nature is robbed of an effective weapon against infection. Among the many experimental studies on infection of the peritoneum, there has been a general agreement of results on the following point, viz.: when an infected material which is very difficult or impossible of absorption is introduced into the peritoneal cavity, peritonitis invariably occurs. If there is associated with this an injured peritoneum, the toxic effects of the infection are more virulent and more rapid. From a practical application of this experimental fact to cases drained for oozing, one infers that the introduction of a foreign body, such as a piece of gauze or glass tube, into a peritoneal pocket containing a suitable culture medium, establishes a dangerous communication with the skin of the abdominal wall, populated by its myriads of bacteria, some of which, as Dr. Welch has shown, cannot be removed by any of our present methods of skin disinfection. What better culture tube can be found than a pocket of this kind communicating, through a drainage track, with the exterior?

After the infection has taken place the fate of the patient depends upon the species and virulence of the organism, the quantity and quality of the medium, the density and resistance of the local barriers, and the vital resistance of the patient. That the latter force is a predominating one is proved by the many infected cases which not only recover but show comparatively little systemic reaction. On the other hand, even the most benign pyogenic organisms may, under proper conditions, produce serious results.

Of the usual pyogenic organisms met with in the course

of our surgical work we consider the streptococcus pyogenes the most dangerous, the staphylococcus aureus the next in point of danger, and the staphylococcus albus the least harmful. The frequent occurrence of staphylococcus aureus in our fatal peritonitis cases leads us to coincide with Grawitz's and Waterhouse's opinion concerning the toxic effects of this organism when introduced under proper conditions into the peritoneal cavity.

The fact, however, that a great majority of stitch abscesses and localized suppuration of the abdominal wound are produced by the staphylococcus aureus without further lesions leads one to believe that its growth is usually easily inhibited or that its virulence is variable. In 15 stitch abscesses examined by Dr. Miller and myself, 12 were infected by the aureus and 3 by the albus; and in the cultures from 16 abdominal gauze drains referred to on previous pages it was found 11 times, while the albus only occurred 4 times. There can be no question but that the introduction of the streptococcus into an injured peritoneal cavity is always dangerous. The cases have been rare indeed in which this organism was found at the time of operation, or introduced during or after operation, that have not been followed by grave septic symptoms, often terminating in death. That even this organism, however, can be held in check is proved in a few instances in the 1,700 cases under consideration.

If the staphylococcus albus is the only organism present, as a rule very slight or no reaction is noticed. That it is capable, however, of producing serious effects is proved by one case of fatal peritonitis in which this micro-organism was found.

The degree of harm which the bacillus coli communis is capable of producing is probably very slight. We find it almost invariably in wounds about the vagina and intestines, without marked inflammatory reaction. In cases of pelvic abscess drained through the vagina it is usually found in the drains; of 13 vaginal drains examined it was present in 9. The constancy of its presence in certain surgical fields without an increased percentage of suppuration has caused us to attribute very slight or no pyogenic power to it. The uniformity of good results in perineal operations, where it will be found almost invariably, has largely led to this opinion.

Fatal cases of peritonitis have been attributed to the rarer organisms, such as the bacillus lanceolatus, the bacillus pyocyaneus, the bacillus lactis aerogenes, but in no case have we ever discovered them in a drain.

Air organisms are usually found in the projecting end of the drain and for a short distance below the surface, but when unassociated with pyogenic forms they give rise to no reaction.

The danger of infection through a drainage track is undoubtedly greater after the first removal of the drain than immediately after the operation. In many of our cases no symptoms of systemic disturbance have been observed until two or three days after this time. Within a few hours after the introduction of a drain a tenacious, plastic, cement-like fibrinous envelope is formed about it, binding the adjacent peritoneum and gauze together in the closest apposition. Any attempt to remove the drain at this time not only causes great pain to the patient, but serious accidents may follow the disruption of the adhesions. In 8 of the drainage cases of our series loops of intestines and parts of the omentum have been dragged out upon the abdomen, and in one instance fatal hemorrhage followed the dislodgment of ligatures in a very adherent inflammatory case where numerous vessels had been tied. As the fibrinous envelope begins to organize, the new vessels enter it a short distance, the layer of fibrin in contact with the gauze degenerates, and the close band of union between the gauze and peritoneum is dissolved. Practical experience has taught us that this stage in the organization of the fibrin is reached about the fifth day. Even then the gauze may adhere so closely to the floor of the pelvis as to be dislodged with great difficulty. Under the most favorable circumstances the enveloping wall of adhesions may be broken up, giving an easy entrance to the peritoneal cavity of infectious matter from the exterior, through the drainage material.

The following notes, on a case after hysteromyomectomy in which a gauze drain was employed simply to control oozing, demonstrate the course of a local infection which occurred after the drainage track had been securely walled about by adhesions:

July 22d, 1895: Operation. Hysteromyomectomy; considerable oozing on floor of pelvis, requiring a gauze drain.

July 27th, 1895: Drain removed, followed by escape of at least a half-pint of thin, red fluid, odorless and non-purulent. Abdomen soft, general condition good. Small piece of gauze reinserted. Cultures and cover-glass preparations from wound negative.

July 29th, 1895: Drain again removed, followed by escape of six ounces of thin, red fluid, non-purulent. Abdomen flat, general condition good. One piece of iodoformized gauze introduced.

August 1st, 1895: Drain removed; discharge purulent, four to five ounces escaped. Slight collection of pus about the lower angle of incision. General condition of patient good. No elevation of temperature or pulse. *Staphylococcus albus* and *aureus* obtained from the fluid.

August 2d, 1895: Drain removed; discharge less, decidedly purulent in character. General condition of patient good.

August 4th, 1895: Drain removed; considerable amount of sero-purulent fluid escaped on making pressure on both sides of wound.

August 6th, 1895: Free flow of yellow, purulent fluid; no odor. Sinus is about eight centimetres in length. Abdomen flat and non-sensitive.

September 2d, 1895: Patient is discharged to-day. Lower angle of incision at site of drainage not yet closed. A small cone of granulation tissue projects from the fistula; slight purulent discharge. General condition good.

When the drainage track becomes infected and does not heal, as in this case, the patient may return home and have a persistent discharge from it for many months. Occasionally the superficial part of the track will close, followed by a painful swelling and redness around the fistula, attended with a rise of temperature which is only relieved by a spontaneous or artificial reopening of the fistula. In these prolonged suppurative tracks the deep silk stitches may become infected, which will prolong the healing until they are all cast off.

One of the greatest dangers in removing the gauze drain is that organisms which have gained entrance to the upper part of the drain will be squeezed out of the drain as it is withdrawn through the narrow opening in the abdominal wound, thus infecting the degenerating fluid which is left in the dependent pocket. Some of the most virulent infections have occurred apparently in this way. Large drained cavities, especially where there is an extensive raw surface, will refill with serous and hemorrhagic fluid after the removal of the drain. The abdominal opening may then heal rapidly and within two or three days become hermetically sealed, preventing the escape of the infected fluid. This complication in the patient's convalescence is signaled by a chill and rise in the temperature, and, if the fluid is not liberated by incision or dilatation of the drainage track, it may escape into the abdomen through rupture of the drainage track.

While this is the usual termination in these cases, the infection may be so mild that the patient suffers little or no inconvenience, and possibly may leave the hospital without its being detected, to return later complaining of pain in the lower abdomen and slight fever. Examination reveals the purulent

collection pointing toward the bowel or vagina into which it may rupture or be opened artificially. In other cases the mass may be gradually absorbed and finally disappear altogether.

These are the lesser evils following the removal of the drain. As demonstrated twice in our series of cases, a fatal termination may follow from the rupture of the pent-up fluid into the peritoneal cavity. This accident occurred in a case of ectopic pregnancy and in a pelvic inflammatory case. The case of ectopic pregnancy also demonstrated the danger of introducing a drain into coagulated blood. It is always dangerous to fill a freshly oozing area with a gauze drain, but I know of no procedure more hazardous than the establishment of a communication between intraperitoneal devitalized clots of blood and the exterior. It is much safer to allow small encapsulated collections of blood, like those found after the rupture of an early ectopic pregnancy, to be disposed of by the means at Nature's command, than to open the abdominal cavity and drain.

In cases where these collections show signs of infection, or where there is danger of a secondary rupture from the further growth of the ectopic product, if they cannot be totally removed from above it is far better to follow the plan employed so successfully by Dr. Kelly of puncturing these sacs and evacuating them through the vagina.

While this procedure may at first sight be opposed by our preconceived ideas of the increased dangers of infection through this route, the objection is answered by the successful results, which may be explained on rational grounds. The strong wall of adhesions thrown about these collections of blood is well supplied with vessels, and can resist the slight amount of infection which may be introduced in a properly conducted operation. After operation the infection of the sac is prevented by the disinfectant properties of the normal vaginal secretion. The conditions, however, occurring in a recently ruptured case are very different, for then there are free clots in the peritoneal cavity, unprotected by the enveloping wall of adhesions, which, if infected, will usually cause death. Under these circumstances a clean abdominal operation is the only advisable course to pursue.

DRAINAGE IN CASES WHERE INFECTIOUS MATTER IS SUPPOSED TO BE PRESENT AT THE TIME OF THE OPERATION.

From Dr. Miller's bacteriological examination of the ovaries,

tubes, and uteri removed for inflammatory conditions, we have learned that the accumulation of pus in the pelvis rarely contains active organisms at the time of operation. In 44 specimens of ovaries and tubes, organisms resembling gonococci were found in 6 cover-glass preparations, but did not grow in cultures. The staphylococcus albus and aureus and streptococcus were found once in culture. With these exceptions the 44 cases were negative. Fifty-six uteri were examined, in none of which were organisms found in culture. The gonococcus was observed once in cover-glass preparations.

TABLE II.—CULTURES FROM UTERINE CAVITY.

Abstract from notes made by Dr. G. B. Miller, Assistant Resident Gynecologist in the Johns Hopkins Hospital.

No.	Date.	Disease.	Cover glass.	Agar.	Glyc. Agar.	Acid Gel.	Blood Serum.
1	Oct. 25th, 1894...	Pyosalpinx.....	Neg.	Neg.	Neg.		
2	Oct. 29th, 1894...	Hydrosalpinx.....					
3	Oct. 29th, 1894...	Pyosalpinx.....	"	"	"		
4	Nov. 8th, 1894...	".....	"	"	"	Neg.	Neg.
5	Nov. 9th, 1894...	".....	"	"	"	"	"
6	Nov. 8th, 1894...	".....	"	"	"	"	"
7	Nov. 26th, 1894...	".....	"	"	"	"	"
8	Feb. 20th, 1895...	Endometritis, post op.	"	"	"	"	"
9	Feb. 2d, 1895...	".....	"	"	"	"	"
10	March 2d, 1895...	".....	"	"	"	"	"
11	March 6th, 1895...	".....	"	"	"	"	"
12	Feb. 28th, 1895...	Salpingitis: peri- oöphoritis.	"	"	"	"	"
13	March 23d, 1895...	Endometritis.....	"	"	"	"	"
14	March 23d, 1895...	".....	"	"	"	"	"
15	March 23d, 1895...	Normal uterus.....	"	"	"	"	"
16	March 21st, 1895...	Pyosalpinx.....	"	"	"	"	"
17	March 28th, 1895...	".....	Neg.	"	"	"	"
18	March 30th, 1895...	Myoma uteri.....	"	"	"	"	"
19	April 6th, 1895...	".....	"	"	"	"	"
20	April 13th, 1895...	".....	"	"	"	"	"
21	April 15th, 1895...	Pyosalpinx: pelvic peritonitis.	Neg.	"	"	"	"
22	.....	".....	"	"	"	"	"
23	April 30th, 1895...	Abscess of ovary....	"	"	"	"	"
24	April 30th, 1895...	".....	"	"	"	"	"
25	.....	Pyosalpinx.....	"	"	"	"	"
26	April 17th, 1895...	Salpingitis: peri- oöphoritis (chronic).	"	"	"	"	"
27	May 22d, 1895...	Hydrosalpinx.....	"	"	"	"	"
28	May 22d, 1895...	Pyosalpinx.....	"	"	"	"	"
29	May 20th, 1895...	Salpingitis: peri- oöphoritis.	"	"	"	"	"
30	May 16th, 1895...	".....	"	"	"	"	"
31	June 12th, 1895...	Pyosalpinx.....	"	"	"	"	"
32	June 13th, 1895...	".....	"	"	"	"	"
33	June 17th, 1895...	Myoma uteri.....	"	"	"	"	"

TABLE II.—Continued.

No.	Date.	Disease.	Cover glass.	Agar.	Glyc Agar.	Acid Gel.	Blood Serum
34	July 5th, 1895....	Myoma uteri....	Neg.	Neg.	Neg.		
35	July 15th, 1895....	Pyosalpinx....					
36	Aug. 15th, 1895....	".....	"	"	"		
37	July 22d, 1895..	".....	"	"	"		
38	Sept. 11th, 1895....	".....	"	"	"		
39	Sept. 11th, 1895....	Myoma uteri..	"	"	"		
40	Sept. 23d, 1895....	Salpingitis and peri- oöphoritis.	"	"	"		
41	Sept. 28th, 1895..	".....	"	"	"		
42	Sept. 30th, 1895....	Pyosalpinx.....	"	"	"		
43	Oct. 3d, 1895....	".....	"	"	"		
44	Oct. 23d, 1895....	Pelvic peritonitis....	"	"	"		
45	Nov. 12th, 1895..	Pyosalpinx....	"	"	"		
46	Nov. 4th, 1895....	".....	"	"	"		
47	Nov. 20th, 1895....	".....	Gono cocci.	"	"		
48	Nov. 23d, 1895..	Myoma uteri.....	Neg.	"	"		
49	Nov. 27th, 1895....	".....	"	"	"		
50	Nov. 27th, 1895....	Salpingitis and peri- oöphoritis.	"	"	"		
51	Dec. 25th, 1895....	Pyosalpinx.....	"	"	"		
52	Jan. 17th, 1896....	".....	"	"	"		
53	Feb. 15th, 1896..	".....	"	"	"		
54	March 12th, 1896..	".....	"	"	"		
55	March 29th, 1896..	Myoma uteri..	"	"	"		
56	April 10th, 1896....	Salpingitis and peri- oöphoritis.	"	"	"		
57	June 2d, 1896....	Salpingitis; peri- oöphoritis.	"	"	"		

TABLE III.—BACTERIOLOGICAL EXAMINATION OF PUS FROM OVARIES AND TUBES.

(Abstract from Dr. Miller's notes.)

No.	Diagnosis.	Cover glass.	Agar.	Glycerin agar.	Acid gelatin.	Blood serum.	Gelatin.	Diagnosis.
1	Pyosalpinx.	Negative	Negative	Negative....				Negative.
2	"	Diplococci in cells.	"	"				Gonococcus?
3	"	Diplococci free and in pus cells.	"	"				
4	"	Negative.	"	"				Negative.
5	"	"	"	"				
6	Pelvic abscess.	"	"	"				"
7	Pyosalpinx.	"	"	"				"
8	"	"	"	"				"
9	"	"	"	"	Negative.			"
10	"	"	"	"	"	Negative.		"
11	"	"	"	"	"	"		"
12	Salpingitis..	"	"	"	"	"		"
13	Pyosalpinx.	"	"	"	"	"		"
14	"	"	Pink yeast.	Pink yeast....	Pink yeast.			Contaminated cultures.
15	Ovarian abscess.	"	Negative..	Negative..				Negative.
16	Pyosalpinx.	"	"	"	Negative.	Negative.		"
17	Pelvic abscess.	"	"	"	"	"		"

TABLE III.—Continued.

No.	Diagnosis.	Cover glass.	Agar.	Glycerin agar.	Acid gelatin.	Blood serum.	Gelatin.	Diagnosis.
18	Pyosalpinx.	Negative.	Negative.	Negative.	.....	.....	.....	Negative.
19	"	"	"	"	.....	.....	.....	"
20	"	Diplococci in cells.	"	"	.....	.....	.....	Gonococci.
21	"	Negative	"	"	.....	.....	.....	Negative
22	"	Diplococci in cells.	"	"	.....	.....	.....	Gonococci.
23	"	Negative ..	"	"	Negative.	Negative.	.....	Negative.
24	.....	"	"	"	"	"	.....	"
25	.....	"	"	"	"	"	.....	"
26	.....	"	"	"	"	"	.....	"
27	.....	"	"	"	"	"	.....	"
28	.....	"	"	"	"	"	.....	"
29	.....	"	"	"	"	"	.....	"
30	.....	Short, curved bacillus resembling colon bacillus.	"	White colony on lower part of line or raised above the surface; cocci size of staphylococcus aureus; generally in groups, but also in pairs.	.....	.....	White growth resembling that on glycerin agar; no gas formation.	Undiagnosed.
31	.....	Negative ..	"	Negative .....	.....	.....	.....	Negative.
32	.....	"	"	"	.....	.....	.....	"
33	.....	"	"	"	.....	.....	.....	"
34	.....	"	"	"	.....	.....	.....	"
35	.....	"	"	"	.....	.....	.....	"
36	.....	Gonococci.	"	"	.....	.....	.....	Gonococci.
37	Pyosalpinx.	Negative ..	"	"	.....	.....	.....	Negative.
38	"	"	"	"	.....	.....	.....	"
39	"	"	"	"	.....	.....	.....	"
40	"	"	"	"	.....	.....	.....	"
41	"	Many cocci in pairs and chains.	Staphylococcus pyogenes aureus and albus; streptococcus.	.....	.....	.....	.....	Staphylococcus pyogenes albus and aureus; streptococcus.
42	"	Diplococci in pairs; extra- and intracellular.	.....	Gonococci...	.....	.....	.....	Gonococci.

Total, 42 cases. Negative, 34 cases; mixed infection, staphylococcus albus and aureus, streptococcus, 1 case; undiagnosed, 1 case; contaminated, 1 case; gonococci, 6 cases.

These results in general coincide with the reports of Menge, Schauta, and Reymond and Magill.¹ In an examination of 144 cases by Schauta, streptococci and staphylococci were found 4 times. Menge has observed the staphylococcus once in 26 cases, and Morax once in 33 cases. Cases of pneumococcus infection have been reported by Zweifel, Frommel, and Wertheim. A fatal pneumococcus peritonitis followed the infection in the cases of Frommel and Witte. Reymond and Magill believe that a salpingitis may be produced by the colon bacillus, and think that it gains entrance through adhesions or through close propinquity to the intestine.

From this general review of the bacteriological conditions in

¹ Annals of Surgery, 1896.

GRAPHIC ILLUSTRATION OF RESULTS IN ONE HUNDRED SIMILAR PELVIC
INFLAMMATORY CASES, DRAINED AND UNDRAINED.

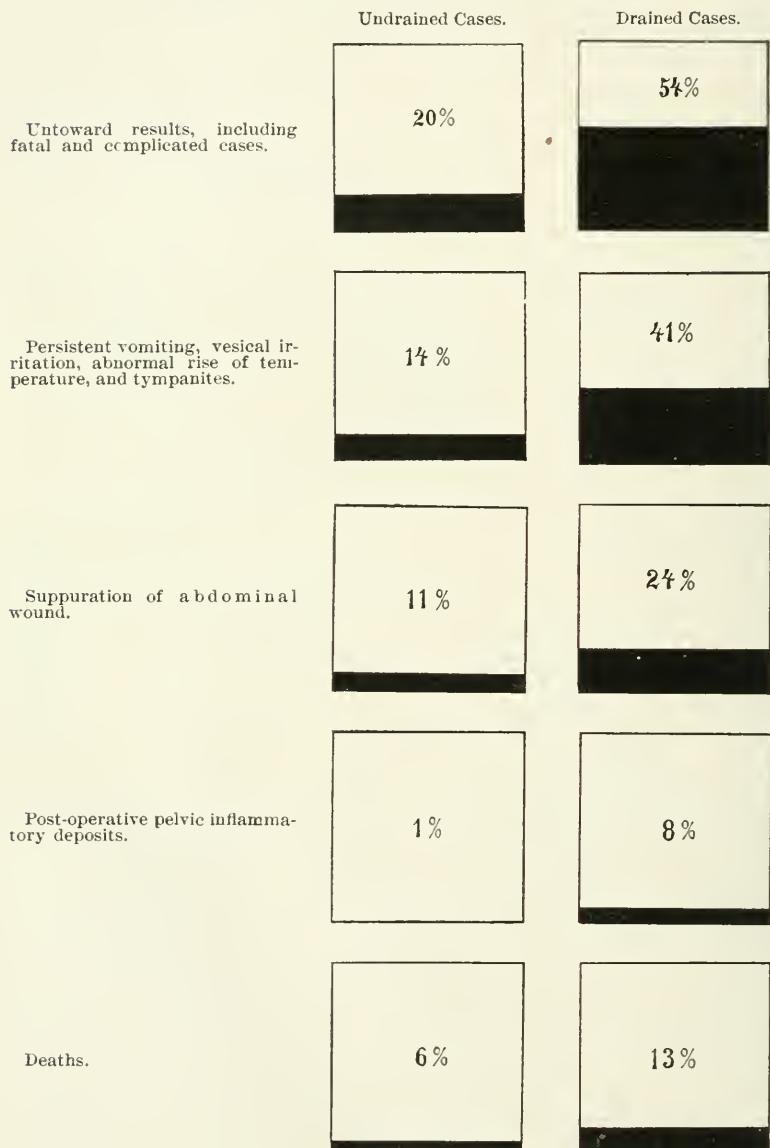


FIG. 1.

these cases, we conclude that infection of the peritoneum from the diseased area at the time of operation is not likely to occur, as the initial infecting organism has disappeared. Notwith-

standing this conclusion I have considered the pelvic inflammatory diseases of the uterus and appendages as the type most likely to have infectious matter in the pelvis, which, if liberated at the time of operation, may cause a peritonitis or septicemia. With a view to ascertaining the merits of drainage in these cases, I have taken Dr. Stavely's careful résumé of 563 abdom-

TABLE IV.—SUMMARY OF RESULTS IN TWO SERIES EACH OF ONE HUNDRED CASES OF PELVIC INFLAMMATORY DISEASE, DRAINED AND UNDRAINED.

	One hundred undrained cases.	One hundred drainage cases.
Salpingitis and perioöphoritis with dense adhesions	26 cases.	28 cases.
Salpingitis and perioöphoritis with moderate adhesions	31 "	11 "
Salpingitis and perioöphoritis with no adhesions	6 "	4 "
Hydrosalpinx with dense adhesions	6 "	9 "
Hydrosalpinx with moderate adhesions	2 "	0 "
Pyosalpinx with dense adhesions	20 "	44 "
Pyosalpinx with moderate adhesions	9 "	4 "
<i>Operation.</i>		
Rupture of pus sacs during operation	19 cases.	31 cases.
Extensive oozing	25 "	41 "
Injury of intestine, varying in degree from rupture of peritoneal coat to wide opening in lumen, ...	16 "	14 "
<i>Post-operative Results.</i>		
Uncomplicated	80 cases.	46 cases.
Recovery complicated by abnormal rise of temperature, persistent vomiting, vesical irritation, tympanites	14 "	41 "
Suppuration of abdominal wound	11 "	24 "
Post-operative pelvic inflammatory deposits	1 "	8 "
Deaths	6 "	13 "

inal-section cases,¹ in addition to many cases analyzed by myself, from which I have selected two series each of 100 cases of pelvic inflammatory diseases, in one of which all were drained, and in the other none were drained (Fig. 1).

The criticism may be offered that this comparison is not admissible for the study of results, because the drained cases are always the more serious. When, however, the series of general abdominal operations is reviewed in groups of one

¹ The Johns Hopkins Hospital Reports, vol. iii., 1894.

hundred, in which the drainage percentage was as follows: first hundred 74 per cent, second hundred 57 per cent, third hundred 48 per cent, fourth hundred 7 per cent, fifth hundred 10 per cent, and many undrained cases are seen in the last hundred which were similar to those drained in the first and second hundreds, the difference between the drained and undrained cases is seen to be slight.

Admitting that the hundred drainage cases were much more serious than the hundred in which the abdomen was closed, I think the widely differing results of the two will convince any observer that drainage was at best valueless. To deduce a definite conclusion as to the relative results in these inflammatory cases I have arranged them in two tables (see Table IV.).

The rupture of intraperitoneal pus sacs containing living organisms, during the course of an operation, is unquestionably an added complication; this danger, however, in general, has been greatly overrated, as demonstrated by the foregoing table, which shows that the pus, instead of being infectious, is almost invariably free from virulent organisms. At one time the escape of the smallest amount of pus was considered an urgent indication for drainage. Notwithstanding the slight danger from this cause, the greatest care should still be exercised in preventing the accident, because isolated cases occur in which active organisms are present, and a fatal peritonitis may follow the distribution of the pus.

Every surgeon of the present day recognizes, as did Peaslee forty years ago, the dangers of leaving an oozing surface in the peritoneal cavity. Reference to the foregoing summary shows that in 41 per cent of the drained and in 25 per cent of the undrained cases more or less oozing was present. That the oozing areas gave rise to little harm in the undrained cases is shown by the favorable results. I attribute the higher mortality in the drained cases largely to their infection through the medium of the drain. The wide difference in immediate recoveries between drained and undrained cases speaks for itself.

POST-OPERATIVE OBSTRUCTION OF THE BOWEL FROM THE USE OF DRAINAGE.

Doubtless the obstinate constipation, tympanites, and nausea and vomiting after operations in which drains are employed are due to a constrained position of the intestine around the drain, because these complications are much more frequent in

the drained than in the undrained cases. The ability of the intestine to maintain its function under adverse circumstances is remarkable, but in no case is it more frequently demonstrated than in drained cases.

Autopsies on cases in which no symptoms of obstruction have been present have frequently shown the intestines matted together around a drainage track like a tangled skein of yarn.

Although in many instances patients have complained of constipation and griping pains for many days after an operation, in but a single instance has an obstruction occurred which required a secondary operation for its relief. The obstruction in this case was produced by a sharp kink between the drainage cavity and the lower end of the ileum. In this case the constriction was gradually formed, and the operation for its relief was performed thirty days after the first operation and fifteen days after the first premonitory symptoms of the obstruction appeared.

FECAL FISTULA FOLLOWING DRAINAGE.

This complication occurred once in our series of 1,700 cases, and in another case which had been operated upon elsewhere. In both instances the fistula had resulted from pressure necrosis produced by the glass tube on the bowel.

In the first case double salpingo-oöphorectomy had been performed for the relief of double ovarian abscesses; the operation was extremely difficult and attended by much traumatism to the peritoneum, but no injury to the bowel occurred. A drainage tube was kept in place for many days and was removed with considerable difficulty. At the end of the third week, the day after the removal of the drain, fecal matter began to escape from the drainage track. This discharge persisted until a subsequent operation was performed for the cure of the fistula.

In 3 other cases of our series gas and small particles of fecal matter escaped for a short time after the removal of the gauze drain, but in each instance closed before the patient left the hospital. While in the past drainage has been considered necessary in all cases where injury involving all the coats of the intestine has occurred, experience has demonstrated that when intestinal lesions even of this grade have been securely sutured a drain is not only unnecessary but may be harmful. The plastic function of the peritoneum will easily take care of well-repaired injuries, while a gauze drain may be harmful by

hindering the reparative process. If, however, there is doubt concerning the integrity of the suturing, the necessity for a drain is unquestioned, for the artificial track produced by the drain furnishes an exit for the fecal matter in the event of the sutured area breaking down.

Sutured lesions in the lower bowel should be brought in contact with and be covered in by an adjacent peritoneal surface. In two or three instances Dr. Kelly has dealt successfully with injuries to the rectum by throwing the uterus into retroposition over the sutured area, thus utilizing it as a safety buttress. The omentum may be used as a good secondary envelope for the injured areas in the intestine by placing it properly over the injury at the completion of the operation. If the abdomen can be closed with safety the chances for a perfect result are much better than where drainage is used. The ingenious and skilful surgeon will usually be able to so employ the means at his command that there will be no necessity for drainage.

VESICAL COMPLICATIONS PRODUCED BY DRAINAGE.

The cavity to be drained is usually situated in the cul-de sac or on the floor of the pelvis, and to place the gauze properly it must be brought out by the side or over the fundus of the bladder into the lower angle of the wound. The inflammatory reaction around the drain may cause vesical irritation, cystitis, and persistent dysuria. A perivesical inflammation may be established by continuity, the adhesions may prevent the normal distension of the bladder or hinder its contraction, or, more rarely, a suppurating cavity may rupture into the bladder. In the largest number of cases these minor complications have disappeared in a short time, but occasionally have persisted as chronic disabilities.

POST-OPERATIVE HERNIA DUE TO DRAINAGE.

During the last three years Dr. Russell, of the Johns Hopkins Hospital, has kept a close observation on the history of abdominal cases subsequent to operation, seeing many of the patients in the out-patient department and communicating with others by letter. On account of the nomadic life of many of the charity cases, it has been impossible to follow the post-operative histories of some of them, consequently a definite statement as to the absolute frequency of hernia in drainage cases cannot be made. From statistics in his possession, however, I find that at least 8 per cent of cases in which an extensive

drain has been used have been followed by this complication. For two years past we have employed buried silver-wire sutures to close the abdominal wound, and this method has greatly decreased the number of herniæ following operation.

When a drain is employed silver mattress sutures are buried along the line of the incision down to the drainage track, holding the aponeurosis of the recti muscles in close apposition. With this safeguard the formation of hernia is usually prevented, because the sutures do not permit the separation of the aponeurosis and muscles. Even when suppuration in the wound occurs granulations usually form around the wire, and healing may take place rapidly, although in a few instances it has been necessary to remove the suture on account of the persistence of the discharge.

PREVENTION AND REMOVAL OF INFECTION WITHOUT THE EMPLOYMENT OF DRAINAGE.

In order to avoid the supposed necessity for drainage, certain details of an abdominal operation should be observed with the most scrupulous and painstaking care.

1. *Thorough Disinfection of the Hands.*—No preliminary preparation for operation requires more care than the cleansing of the hands, as they, above all other agencies, are most likely to carry infected matter into a wound.

Zweifel lays down the rule that at least three days should supervene after contact with infectious matter before abdominal operations can with safety be undertaken. The transmission of infection from one case to another has been demonstrated by him in an outbreak of puerperal infection, where one patient infected herself from a discharging abscess in the eyelid, and from this case the infection was carried to other patients by the ward midwife, notwithstanding the very thorough disinfection of her hands.

A very clear example of this accident also occurred in the Johns Hopkins Hospital. An operation for the relief of an ovarian abscess infected with virulent streptococci was followed by a rapidly fatal termination from general infection. Four patients operated upon during three subsequent operating days became infected with the same organism. Fortunately none of the cases secondarily infected died, but in all, extensive suppuration of the abdominal wounds occurred, necessitating the removal of the patient to the isolation ward. In these cases the operator and assistants had followed the usual methods of disinfection,

but notwithstanding this precaution the organisms were evidently transmitted from one case to another by the hands.

It is certainly safer to suspend all operations, after contact with an infectious case, for at least three days, as suggested by Zweifel.

2. *Control Hemorrhage.*—Hemorrhage should be stopped by ligating the larger vessels and twisting or clamping the ends of the smaller vessels. Ligation or clamping of large areas of tissue is bad surgery. When oozing occurs every means should be employed to check it; if it persists it is safer to leave the peritoneum to take care of it than to drain. In none of our cases has the bleeding from ordinary oozing surfaces proved dangerous *per se*, but serious harm has resulted from an infection of these areas through a drain.

3. *Avoid Bruising or otherwise Injuring the Tissues.*

4. *Isolate the General Peritoneal Cavity during Operation.*—This precaution should be observed as far as possible during the course of the operation by walling off the general peritoneal cavity with gauze pads and non-absorbent cotton bolsters enveloped in gauze. While it is perfectly safe to assume that the peritoneum is capable of destroying a considerable amount of infectious matter, unnecessary work should not be thrown upon it by allowing fluids and débris to escape into the general peritoneal cavity during operation.

5. *Preserve the Peritoneum.*—Sacrifice as little of the peritoneum as possible, and when this is unavoidable try to bring an adjacent peritoneal surface in contact with the denuded area.

6. *Conserve the Bodily Heat.*—Avoid exposing the intestines, and never allow them to become chilled. Wegner has shown that the resistance to infection is greatly decreased by lowering the temperature of the intestines. Peristalsis is more or less inhibited; the transudation of serum is increased without compensatory absorption, on account of the local shock produced by the cold.

7. *Avoid Rupture of Intraperitoneal Abscesses.*—Avoid rupturing abscesses in the peritoneal cavity. If this accident occurs lose no time in removing the pus and irrigating the pelvic or peritoneal cavity, if the pus has been generally distributed.

8. *Irrigate the Peritoneal Cavity.*—After every operation where débris or normal fluids escape into the peritoneal cavity, irrigate the abdomen thoroughly with normal salt solution (0.6

per cent), with a view of removing all extraneous matter that is possible.

9. *Promote Absorption by Saline Infusions into the Peritoneal Cavity, followed by Postural Drainage.*—Introduce 500 to 1,000 cubic centimetres of salt solution into the peritoneal cavity when the operation has been prolonged or the presence of septic matter is suspected, and, when the patient is returned to her room, elevate the foot of the bed eighteen inches for the first twenty-four hours after the operation.

10. *Submammary Saline Infusions.*—If symptoms of infection arise after operation, inject salt solution infusions into the cellular tissue beneath the breasts.

The necessity for the first seven of these procedures is generally accepted, but the last three are open to discussion. Some surgeons insist upon a dry technique throughout an abdominal operation, and are much opposed to the dispersion of blood or infectious matter in the general peritoneal cavity by irrigation. For the last three years it has been our custom not only to irrigate the abdominal cavity thoroughly after all operations where pus or other fluids have escaped, but frequently also to leave as much as one litre of salt solution in the peritoneal cavity before closing the abdominal wound.

It is a well-known principle in physics that a substance will undergo combustion or solution much more rapidly in a finely divided state than when it is massed together. The same principle may be applied to the disposal of foreign matter in the peritoneal cavity. In Muscatello's experiments the leucocytes could easily surround the smaller foreign bodies and carry them into the general circulation through the spaces in the diaphragm; but where they were larger many leucocytes were required for this task, and the removal of still larger particles could only be accomplished after their encapsulation and subsequent slow disintegration by the leucocytes. His experiments also demonstrated that there existed an intraperitoneal current capable of transporting the carmine bodies, even against the force of gravity, from the pelvis to the diaphragm. When to these conditions we add the proved fact that the normal peritoneum can take care of a large amount of infectious matter without danger to the animal, it appears to me that there can be no question but that it is better to disintegrate and distribute infectious matter rather than allow it to remain in a localized area.

POSTURAL METHOD OF DRAINING THE ABDOMINAL CAVITY.

The many bacteriological studies in cases of experimental and post-operative peritonitis and in experimental infections of the peritoneum show conclusively that the infecting organisms are quickly distributed more or less generally in the peritoneal cavity, from whence they are carried into the system at large. Where there is no persistent source of infection, virulent species of bacteria may be destroyed effectually in this way; but when a nidus of infection exists in which the micro-organisms are propagated, the patient is either carried off by a rapidly fatal septicemia or peritonitis, or the peritoneal exudate forms a barrier to the further distribution of the infectious matter, which then follows the clinical course of any localized collection of pus.

To avoid this danger the most scrupulous care should be observed in every abdominal operation not to leave behind any condition which may furnish a starting point for an infectious process. Oozing should be controlled as far as possible, injury and exposure of the peritoneum should be guarded against, raw areas should be covered with adjacent healthy peritoneum when practicable, and all débris and fluids should be removed as far as possible before the abdomen is closed.

Notwithstanding every precaution, dead spaces will be left after many operations, which may become collecting places for degenerating fluids. In addition to these artificial spaces, oozing serum and blood may collect in Douglas' cul-de-sac or in the anteuterine space and become the focus of a general peritonitis or a localized pelvic abscess. To offset these dangers all dependent spaces should be drained as rapidly as possible, thus preventing the collection and stagnation of vital fluids, which are active germicides when first secreted, but become excellent culture media when degenerated.

By elevating the pelvis after operation the normal intraperitoneal current may be assisted greatly in at once draining dead spaces, and thus give the general peritoneal cavity and system at large the best opportunity to meet the invading organisms before they have had time to increase in numbers. To remind one of the incredible rate of multiplication of micro-organisms it is only necessary to quote Cohn's classical statement that "one germ under proper conditions may give rise to more than a half-million of similar organisms within twenty-four hours." Stagnating fluids in the dependent parts of the abdominal cavity or in dead spaces may furnish such a favorable culture

bed that a few organisms may quickly generate myriads of others and overcome the most resistant germicidal forces; if, on the other hand, these spaces can be prevented from filling with fluids, the organisms may easily be overcome.

In addition to the mere transportation of the organisms from an area of decreased resistance to one of normal resistance, the irritant chemical toxins elaborated by the bacteria are diluted and the infectious matter is divided into a fine, granular state, thus giving the leucocytes the best opportunity to encompass the organisms.

Although fatal septicemia may be produced in animals by the absorption of large quantities of organisms from the peritoneal cavity, it appears to me correct to assume that after a well-conducted abdominal operation no such quantities of organisms will be left behind as are necessary to produce septicemia in the animal experimentally. If such a condition should exist the patient would certainly die from the rapid multiplication of the organisms in dependent cavities. Hence I conclude that the better chance for the patient's recovery lies in the direction I have indicated. My arguments, therefore, in support of this postural method of drainage are, first, stagnating fluids are prevented from collecting in dead spaces in the pelvis; second, infectious organisms are quickly carried into normal areas of the body, where they are destroyed before they can increase in numbers; and, third, toxic substances elaborated by the organisms are diluted and prevented from expending their irritant effects on a wounded area.

The method which I desire to offer is briefly as follows: At the conclusion of an operation all fluids and débris should be removed as far as possible by sponges, after which the abdominal cavity should be irrigated thoroughly with normal salt solution until the fluid comes away clear. When the irrigation fluid is all sponged out, 500 to 1,000 cubic centimetres of salt solution should be poured into the peritoneal cavity, so that when the patient is elevated after she is returned to the ward the artificial current may be started at once toward the diaphragm, thus supplementing the normal current. After the introduction of the salt solution the omentum and intestines should be replaced in an orderly way and the abdomen closed. As soon as the patient is returned to her room the foot of the bed should be elevated about twenty degrees, which gives sufficient inclination of the posterior pelvic wall to assist the flow toward the general peritoneal cavity. This posture should be

maintained for twenty-four to thirty-six hours, after which the bed may be lowered. Leaving the salt solution in the abdominal cavity is not a novel procedure, as it has been done in a large number of cases during the last two years in the gynecological department, and other abdominal surgeons have used it with good effect.

This postural method of drainage is offered as a prophylactic measure against post operative peritonitis, but *not as a curative measure after the peritonitis is established*. It should therefore not be employed when an operation is performed for the relief of purulent peritonitis or for inflammatory conditions associated with general peritonitis, as for instance some cases of appendicitis.

From the experiments of Waterhouse in which he proved the danger of infection in cats suffering with ascites on account of the defective absorptive mechanism, it would also appear unsafe to adopt the postural method in cases when this complication is coincident with the surgical affection. Pawlowsky has shown, in his excellent experimental investigations, that the lymph channels leading from the peritoneal cavity are choked with the infectious bacteria and inflammatory products in purulent peritonitis, and therefore advises free drainage through an abdominal incision.

In these cases it is evident that the multiplication and virulence of the organism have been too great for the phagocytes to overcome successfully, and that the only method of treating this condition is to remove as much pus as possible by irrigation with salt solution or by mopping the peritoneal surfaces with sponges wet with salt solution, as suggested by Finney, and then to insert a very free drain.

Only one of the cases which I report in this paper showed organisms on culture. The presence of pyogenic organisms is not a contraindication to the employment of the postural method, because all investigations have proved conclusively that the peritoneum can overcome the invasion of large numbers of the most virulent organisms. Cases of pelvic inflammatory diseases, however, rarely come to operation while the organisms are yet active, as shown by Miller of the Johns Hopkins Hospital, Schauta, Menge, and others.

SUBMAMMARY SALINE INFUSIONS AS A THERAPEUTIC
AGENT IN SEPTICEMIA.

Recent investigations by Bosc¹ and Claisse² show that saline infusions are of marked benefit in septic cases. Our observations, although somewhat meagre, point decidedly to the value of this method of treatment. A patient treated in the gynecological wards in December, 1895, was apparently carried over the worst stage of a very severe puerperal infection by this means. I give a brief abstract of her history: She was a robust colored woman, who had been a patient in the hospital once before, when she was operated upon for a ventral hernia, which soon recurred. She returned in six months to the dispensary, when a wide diastasis of the recti muscles was found, and, lying in a hernial sac almost entirely outside of the peritoneal cavity, a pyriform body which was thought to be a tumor of the omentum. Upon further examination after admission into the hospital the tumor was found to be a five-months pregnant uterus. She was given a supporting bandage and asked to return to the hospital for her confinement, for we wished to watch the progress of the labor under these abnormal conditions.

She entered the hospital in December, 1895, and was delivered of a large, dead, macerated child which came in breech presentation. There was no retardation of the labor, and the placenta came away intact, but the uterus contracted only slightly. Her temperature rose to 100° F. on the second day, and ranged between this point and 101° F. for three days, when it suddenly rose to 105° F. At this time she was anesthetized and examined. The cervix easily admitted the index finger, and the uterus, although still greatly enlarged, was found to be perfectly smooth on its interior. For the next two days a continuous irrigation of the uterus with sterile salt solution was maintained, without any reduction of the temperature, and, as no beneficial effects were observed from its employment, it was discontinued. Her temperature for seven days after the anesthetization rose as high as 105.6° F., and one time to 106° F., but the patient's general condition remained very satisfactory. About this time, however, her pulse, which had been regular and full, averaging about 80 beats to the minute, began to fail, becoming rapid and intermittent, very feeble, and at times almost imperceptible.

¹ La Presse médicale, 1895.

² Revue de Chirurgie, 1895.

The patient's general condition rapidly changed for the worse; she vomited almost constantly, her eyes became sunken, her face pinched, and she presented all of the appearances of impending death. As all of the usual stimulating remedies had been employed without effect, I decided to resort to saline infusions simply as a cardiac stimulant. A litre was injected beneath the mammæ, followed by the most gratifying improvement. The patient felt much more comfortable and her general expression became much better. From 100 actual beats, between which were many intermittent intervals, the pulse dropped to 76 full, regular beats to the minute. Little or no change, however, was noticed in the temperature, which continued high for three subsequent days, when it began slowly to fall. A litre of salt solution was given each day for seven days, and each infusion was marked by an improvement in the pulse. The patient from the day of the first infusion began to improve, and finally recovered perfect health.

CASES IN WHICH DRAINAGE MAY BE INDICATED.

From a critical review of all classes of drained cases I feel justified in reducing the conditions in which drainage may be indicated to the following:

1. *In Appendicitis* when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, preventing a secure closure of the stump after amputation of the appendix, and when the appendix has ruptured and either caused a localized abscess or a general peritonitis. If the operation can be performed early, when the inflammatory process is confined to the dependent portion of the appendix, *never drain*. The objections to drainage in these cases are probably not as great as when the gauze is introduced deeply into the pelvis, because the site of the operation is more superficial and therefore the possibility of effecting true drainage is better; but if a clean operation has been performed the drain is superfluous. A distinct objection to drainage in the appendiceal area is the liability of post-operative hernia occurring in its track.

2. *Localized Collections of Pus in the Pelvis*.—In these cases either the abscess sac should be cleanly enucleated and the abdomen closed without drainage, or it should not be opened through the abdomen if it is too adherent to be enucleated safely. These cases are, *par excellence*, the ones for incision

and drainage through the vagina, as shown by 65 cases thus treated in the Johns Hopkins Hospital with only 2 deaths.

Before this method of treatment was adopted by Dr. Kelly the mortality following the enucleation of these structures was very much greater. When these abscesses are evacuated from below the operation is wholly extraperitoneal, and the peritoneum is therefore not involved.

It is a very hazardous procedure to open these cavities intraperitoneally and drain from above, both because of the dangers of a fatal peritonitis, and, if this is escaped, the certainty of prolonged suppuration and slow granulation of the sac. In some cases these abscesses never heal when treated in this way. A large ectopic-pregnancy sac, which is securely walled off from the general peritoneal cavity, may also be treated by vaginal drainage with the best results.

3. *Suture of Intestine*.—A drain should only be employed when there is doubt as to the integrity of the suturing.

4. *Excision of Fistulous Tracks* leading from the intestine to the abdominal wall.—In these cases it is safer to pack a gauze drain down to the sutured areas in the intestine, for they are especially prone to break down and re-establish the track. In case this accident occurs the gauze forms a safe avenue for the escape of fluids and gas, and the subsequent contraction of the drainage track may close the intestinal fistula, as demonstrated in two cases which have been treated in this way in the Johns Hopkins Hospital.

5. *Purulent Peritonitis*.—Pawlowsky has shown that the usual avenues for the absorption of fluids from the abdominal cavity are closed in purulent peritonitis, consequently we can only endeavor to supplement them by thorough irrigation of the abdominal cavity and free drainage. In order that the drain shall serve the best purpose it should be a large one, and if necessary, in addition to a central opening in the abdomen, lateral openings in the flanks, as advocated by Dr. Kelly, may be made. The prognosis in these cases is always grave, but this method of treatment gives the patient the best chance of recovery.

Finney, of the Johns Hopkins Hospital, has lately reported five cases of purulent peritonitis treated successfully by thoroughly mopping the peritoneal coat of the intestine, one loop after another, until cleansed of pus and fibrinous exudate.

From these gratifying results it now appears possible that

even purulent peritonitis may be eliminated from the list of conditions in which drainage may be indicated.

METHODS OF DRAINAGE.

Abdominal Drainage.—If an abdominal drain is employed, one or more strips of plain sterile gauze, doubled backward and forward like the folds of a fan, should be packed from the site of operation to the surface. It should be lightly withdrawn and cut off as soon as the external end becomes dry, and by the fifth day should be entirely removed. When necessary to pack in a second piece of gauze the greatest care should be observed not to break up the adhesions around the drainage track within the abdomen. The abdominal opening must be kept patulous until the cavity has filled with healthy granulation tissue.

Vaginal Drainage.—If the pelvis is to be drained the vaginal route is preferable. The dangers of infection are no greater, and the dependent pockets in the pelvis can be drained much more effectively by this means.

Adhesions quickly close off the pelvic cavity from the general peritoneal cavity, and if infection occurs it is likely to be localized to the pelvis. These drains may be introduced from above through a widely dilated cervical stump into the vagina, when hysterectomy for purulent diseases is done through the abdomen, before the peritoneum is sutured over the stump, thus eliminating the dangers of carrying organisms into the wound by packing the gauze through the vagina. If an abscess be punctured the drain can be packed into the cavity through the incision in the posterior vaginal fornix.

It is the custom in the gynecological department to leave these drains in place five days, when they are replaced by a fresh strip of gauze if it is necessary to keep the cavity open for a longer time. To do this properly the patient should be placed in the lithotomy position across the bed and the vaginal opening exposed with a Sims speculum. In this way the danger of contaminating the drain as it is introduced is to a certain extent obviated.

From a bacteriological study of these cases it would appear that the chances for infection are about equal in the abdominal and vaginal drains. The following table gives a summary of the bacteriological notes in the cultures made from this source:

TABLE V.—CULTURES FROM GAUZE DRAINAGE INTRODUCED THROUGH THE CERVIX OR INCISION INTO DOUGLAS' CUL-DE-SAC.

No.	Diagnosis.	Vaginal portion.	Cervical portion.	Pelvic end.	Remarks.
1	Myoma uteri. Hysteromyo- mectomy.	Bacillus coli communis; staphylococ- cus pyo- genes aureus.	Same cul- tures.	Same cultures.	
2	Pelvic abscess. Puncture of abscess.	Negative. ....	.....	Negative.	
3	Carcinoma uteri. Hysterectomy.	Bacillus coli communis; staphylococ- cus pyo- genes aureus.	Same cul- tures.	Same cultures.	
4	Pyosalpinx. Hysterectomy.	No culture made.	No culture made.	Staphylococcus pyo- genes albus.	
5	Suppurating cyst. Hysterectomy.	" "	" "	Bacillus coli com- munis.	
6	Carcinoma uteri. Hysterectomy.	Bacillus coli communis.	" "	Bacillus coli com- munis.	
7	Pelvic abscess	Bacillus coli communis.	" "	Bacillus coli com- munis.	
8	Pelvic inflam- matory dis- ease.	Bacillus coli communis.	.....	Bacillus coli com- munis.	
9	Pelvic abscess.	No culture made.	No culture made.	Bacillus coli com- munis.	
10	Pyosalpinx ...	" "	" "	Staphylococcus pyo- genes albus; strep- tococcus pyogenes.	
11	Acute pelvic peritonitis.	" "	" "	Staphylococcus pyo- genes aureus; streptococcus pyo- genes.	
12	Pyosalpinx ...	Bacillus sub- tilis; pos- sibly bacil- lus coli com- munis.	.....	Same culture.	
13	Carcinoma vaginae Hysterectomy.	Bacillus coli communis.	.....	Bacillus coli com- munis.	
14	Pelvic cellulitis; puerperal infec- tion.	Streptococcus pyogenes.	.....	Streptococcus pyo- genes.	Streptococcus found at time of operation.
15	Pelvic abscess; puerperal in- fection.	Streptococcus pyogenes.	.....	Streptococcus pyo- genes.	streptococcus found at time of operation.

REPORT OF CASES IN WHICH THE POSTURAL METHOD OF
DRAINAGE WAS EMPLOYED.*Case I.*

In this case all the conditions usually supposed to indicate imperatively the employment of some one of the established methods of abdominal drainage were present.

The principal indications were a septic temperature with great prostration of the patient before operation, and during operation the separation of wide-spread adhesions which produced extensive injury to the peritoneum and free oozing of blood, the escape of a large quantity of pus and degenerated blood clots into the abdominal cavity. In addition to these conditions, portions of the cyst wall and degenerated matter in the abdomen, and, most dangerous of all, a large cup-shaped dead space beneath the intestines and mesentery, were left at the conclusion of the operation.

Gynecological No. 4946. E. B. L., admitted January 18th, 1897; married, age 47 years.

Complaint.—Pain in the lower abdomen, more marked on the right side. Slight cough.

Marital History.—Married sixteen years; one child 16 years old; labor easy, puerperium normal, no miscarriage.

Menstruation.—Began at 13 years, regular, normal. Last period terminated December 18th, 1896.

Present Illness.—November 15th, 1896, she had a severe chill, lasting two hours, followed by fever. The next day she had great pain, which continued one week and was accompanied with diarrhea. Since then she has grown steadily weaker, fever and chills occurring frequently, and for the last week she has been confined to bed.

General Condition.—Well-nourished woman; tongue slightly coated, bowels regular, appetite poor. Micturition and defecation painless. For the past four weeks she has had a dry cough. Examination of heart and lungs negative. Cough is produced by a laryngitis. Temperature on admission 103° F., pulse 110.

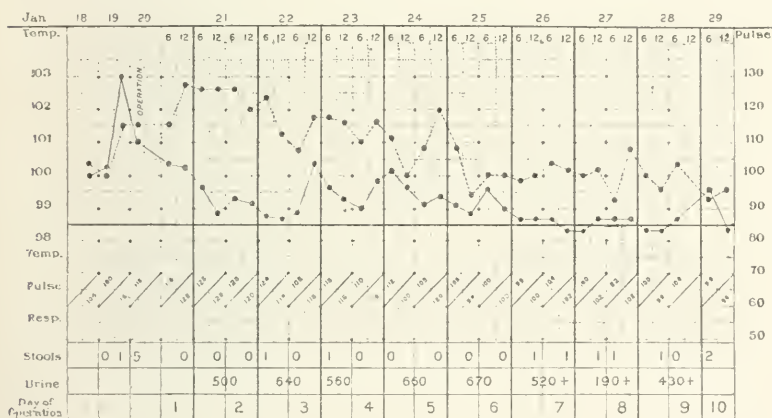
Diagnosis.—Large suppurating ovarian cyst.

Operation by Dr. Kelly, January 20th, 1897. Cystectomy; part of cyst wall left behind.

Complications.—Extensive adhesions to mesentery, bowel, and vermiform appendix. Adhesions to entire posterior pelvis, to omentum, to bladder, and to anterior abdominal wall.

Patient greatly prostrated; pulse before operation 118, at close 144, during operation as high as 156.

Incision 14 centimetres in length, exposing red, mottled and whitish cyst wall closely adherent to anterior abdominal wall over a surface 10 centimetres above symphysis pubis. Omentum adherent to anterior face of cyst over an area 10 by 8 centimetres. Adhesions separated; free oozing from thickened omentum checked by catgut sutures, no omentum removed. Just above this point there was a fringe of flat adhesions binding cyst to intestines and skirting the whole upper border of tumor from left to right. Adhesions so dense that separation was impossible without great injury to intestines. Tumor tapped, about 3,000 cubic centimetres of thick, fetid, yellow pus



CASE 1.

evacuated; the puncture was then closed with sutures. Ten minutes were spent in separating tumor from anterior abdominal wall, bladder, and anterior pelvic wall. Large Fallopian tube on left side was exposed up to a point where it was lost in the tumor. Adhesions to uterus, to pelvic floor on right side, and to part of left pelvic wall divided. On floor of pelvis a sac containing 300 cubic centimetres of thick, brown, pasty blood was evacuated. Ovarian vessels at left pelvic brim exposed by dissecting with knife, fingers, and scissors, and ligated: the left cornu uteri was then tied off and cyst cut loose from top of left broad ligament. In separating adhesions on pelvic floor a sac was ruptured, discharging a large quantity of fetid pus into the peritoneal cavity. This was quickly mopped out and the hole in the sac stuffed with gauze. Cyst cut loose, leaving

a portion of abscess wall, 5 by 8 centimetres in dimensions, on the pelvic floor. Gauze packed over this to protect it during the rest of the operation. Sac peeled up and out of pelvis to adhesions binding it to the intestines above; it was then found that the adhesions extended between the entire length of the mesentery and out on to the intestines. The outer layers of the cyst wall were slit 2 centimetres from bowel on all sides and dissected out from beneath the mesentery, thus completing the enucleation and leaving behind a large cup-shaped dead space. Slight capillary oozing from the portion of cyst wall remaining behind. The portion left in the pelvis also required six or eight ligatures to control oozing. Small epithelial cyst on right side punctured. Right ovary normal. Right tube adherent and closed. Adhesions of right ovary to sac bled freely, requiring two sutures to control it. At completion of operation the abdomen was freely irrigated with a large quantity of salt solution, after which 700 cubic centimetres of salt solution were left in the abdomen. Abdomen closed with buried silkworm gut and cutaneous catgut sutures.

Day of Operation.—Patient's cough very troublesome; pulse 116, temperature 101° F. before operation. Returned from operating room at 11 o'clock, pulse 140, respiration 48, profuse perspiration over entire body; 12 o'clock, pulse 132, respiration 46; 1 o'clock, pulse 129, respiration 44; 2 o'clock, foot of bed elevated twenty inches; 5 o'clock, pulse 116; 6 o'clock, pulse 116, temperature 109.4° F.; 12 o'clock, temperature 100.3° F., pulse 128. Patient uncomfortable, but not suffering great pain.

Second Day.—6 o'clock A.M., temperature 99.6° F., pulse 126. Patient slept in all about two hours, often rendered uncomfortable by cough and heavy perspiration; bed lowered; 12 o'clock noon, temperature 98.8° F., pulse 126. Patient has been comfortable up to this time, cough more troublesome; she now feels nauseated; 6 o'clock, patient has vomited four times during afternoon, but is now comfortable, temperature 99.4° F., pulse 120; 12 o'clock midnight, temperature 99.3° F., pulse 124. Cough troublesome.

Third Day.—Patient slept most of the night, awakened at intervals by paroxysms of coughing. Bowels moved. Temperature 98.8° F., pulse 124; 12 o'clock noon, temperature 98.6° F., pulse 114; 6 o'clock, temperature 98.8°, pulse 108; with exception of pain produced by coughing, patient has passed a comfortable day; 12 o'clock midnight, temperature 100.4° F., pulse 118.

Fourth Day.—6 o'clock, temperature 99.6° F., pulse 118, bowels well moved, patient comfortable: 12 o'clock noon, temperature 99.4° F., pulse 116, patient very comfortable; 6 o'clock, temperature 99° F., pulse 110.

From the fourth until the tenth day the patient made as perfect a recovery as the most uncomplicated cases of abdominal section. The abdominal dressings were removed on the tenth day: incision healed *per primam*, subcutaneous suture entirely absorbed. Cough ceased about this time. Patient sat up in bed on the sixteenth day, and was out of bed in a wheel chair on her nineteenth day, and was able to walk on her twenty-fifth day. She was discharged from the hospital on her thirty-fifth day, feeling perfectly well.

Case II.

In this case the operation was very difficult and attended by many complications. Extensive injury was done to the peritoneum, pus escaped during the operation, the intestine was injured and required suture, free oozing occurred during the operation and persisted at its completion, and large denuded areas were left in the pelvis.

Gynecological No. 4892. A. E. T., widow, age 34 years.

Complaint.—Pain in the right inguinal region, pain in the rectum, and swelling of the abdomen at times.

Menstruation began at 14, flow scanty but regular, lasting two to three days; always painful before marriage, since then painless.

Marital History.—Married fourteen years ago; husband has been dead eight years. Four children, oldest 14 years, youngest 8 years of age. First labor instrumental, the rest were easy. No miscarriages.

Family History.—Negative.

Present Complaint.—She was well until three years ago, when she was confined to bed for three weeks with fever and chills, and severe pain in the lower abdomen, which began in the right side and then shifted to the left. During this attack she had a constant discharge of thick, tarry blood from the uterus. After this attack she was able to get up, but it soon recurred, during which the abdomen became greatly distended and excessively tender. Ten days ago another attack began, which has not been so severe up to this time as the former ones. She complains of pain during defecation and micturition, back-ache and bearing-down pains. Temperature on admission 101° F., pulse 120.

Diagnosis.—Pyosalpinx duplex; retroflexio uteri adherens; pelvi-peritonitis.

Operation.—Enucleation of both ovaries and tubes.

Complications.—Dense adhesions binding pus sacs to pelvic walls and rectum, close relation of abscess on right side with the iliac vessels, persistent oozing following operation, escape of pus during the operation into the abdominal cavity.

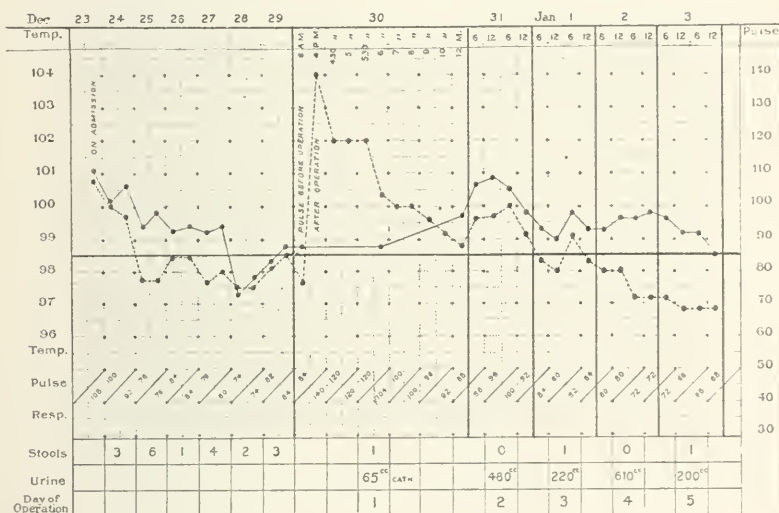
Incision 12 centimetres through thin abdominal walls; intestines packed back into abdomen with gauze bolsters. Impossible to differentiate pelvic structures at first, on account of the dense adhesions covering in and binding all of the organs together. Sigmoid flexure released from mass to which it was bound by dense adhesions. Outer coat of the bowel torn for about 3 centimetres during the separation, but was at once closed with interrupted catgut sutures. The enucleation was then begun on the floor of the pelvis, working upward and freeing the ovary and tube, which formed a sac containing 30 cubic centimetres of pus. These structures were then tied off and cut away from the pelvic wall. The fundus of the uterus was then partially liberated from adhesions, but this was discontinued on account of the free bleeding and danger of tearing into the rectum. A long, fusiform mass on the right side extended along the iliac vessels, with which it was closely adherent, around in front of the bladder. The sac contained 60 cubic centimetres of thick white pus, which partly escaped during the operation. After freeing all the adhesions the round ligament and ovarian vessels were tied off and the mass excised. Active oozing to the right of the fundus over the ureteral area, also posterior to the fundus. After controlling several of these points there was still free hemorrhage at a point on the pelvic floor to the left of the rectum and from another point on the under surface of the broad ligament. This oozing was sufficient to stain a sponge as fast as it could be applied. The abdomen was irrigated thoroughly with salt solution, after which the bladder and fundus, and the fundus and parietal peritoneum, were stitched together to control oozing and cover the raw areas with peritoneum. Five hundred cubic centimetres of salt solution left in abdomen. Pulse at beginning of operation 92, at end 150. Time of operation, one hour and a half.

First Day.—Patient returned to ward at 4 P.M., pulse 140; bed elevated; 4:30 P.M., pulse 120, of good volume; 6 o'clock, pulse 104; 7 o'clock, 100; 9 o'clock, 96; 12 o'clock midnight, 88. Patient recovered quickly from ether without symptoms of shock.

Second Day.—6 o'clock A.M., temperature 100° F., pulse 96; patient complains of much pain; 12 o'clock, pulse 92, temperature 100.8° F., patient sleeping quietly; 6 o'clock P.M., temperature 100° F., pulse 100; 12 o'clock midnight, temperature 99.8° F., pulse 92, patient sleeping quietly.

Third Day.—6 o'clock A.M., pulse 84, temperature 99.3° F. Bowels slightly moved. Condition remained about the same during day. Patient complained of some nausea, but did not vomit.

Fourth Day.—6 o'clock A.M., pulse 80, temperature 99.4° F. Patient rested well, still slightly nauseated.



CASE 2.

Fifth Day.—6 o'clock A.M., temperature 99.6°, pulse 72. Bowels effectually moved, well-formed stool. Patient passed a very comfortable day. From this time on the patient made a good recovery. On the tenth day after her operation the temperature rose to 100° F., and continued about this point until her seventeenth day, when it dropped to normal. At the time of her discharge she was feeling well.

Case III.

In this case there were dense adhesions binding a large suppurating ovarian cyst to the intestines and the abdominal wall. A suppurating fistulous track extended between the caput coli and one locus of the cyst, requiring a number of silk sutures

to repair the opening in the intestine left after the enucleation of the cyst. Pus escaped into the abdominal cavity, and large handfuls of clotted blood were ladled out of a large cavity in the pelvis. Pieces of the cyst wall and much débris remained behind at the completion of the operation. There was considerable oozing and extensive traumatism produced by the separation of the widespread adhesions. Pus from the cyst injected into a mouse killed it within twenty-four hours. Notwithstanding all these complications the patient made a good recovery.

Gynecological No. 4928½. A. E. S., admitted January 9th, 1897. Single, age 35 years.

Complaint.—Increasing size of abdomen, severe constipation, feeling of obstruction in abdomen. Menstruation began at 15 years, occurs every twenty-eight days, four to five days' duration, normal.

Family History.—Negative.

Present Illness.—Patient was always strong and well until four years ago; at this time she suffered with indigestion and was treated by her physician for displacement of the uterus. She had an attack of peritonitis in September, 1895, which confined her to bed four weeks. In October, 1896, she suffered with "chills and fever" which lasted eight weeks. During the attack she passed pus from the rectum; her abdomen was swollen and very tender to pressure. Enlargement of the abdomen persisted after this attack, and has lately been increasing rapidly. She suffers from stricture of the rectum, which followed an operation for hemorrhoids performed in 1892.

Present Condition.—Body emaciated, complexion pale, expression anxious. Appetite good. Micturition normal. Examination of heart and lungs negative. Temperature on admission 100.5° F., pulse 120.

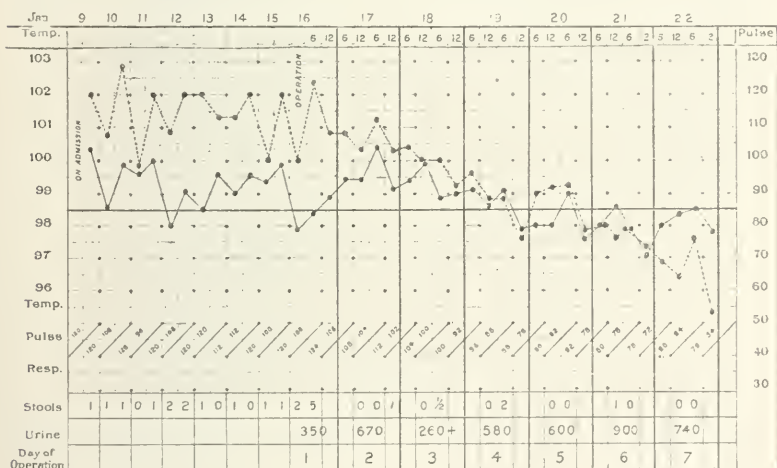
Diagnosis.—Suppurating ovarian cyst.

Operation by Dr. Kelly, January 16th, 1897. Cystectomy.

Complications.—Dense adhesions between cyst and intestine, fistulous opening between intestine and cyst. Pyogenic area over bladder and anterior abdominal wall.

Puncture and evacuation of 2,800 centimetres of fetid pus, part of which escaped into the abdominal cavity. During enucleation of cyst it tore, allowing 150 cubic centimetres of pus to escape. Large hematoma filling lower pelvis opened and handfuls of thick, putty-like blood were ladled out, in all about 200 cubic centimetres. Hydrosalpinx and adherent ovary on the right side released, but not removed. Adhesions between

caput coli and tumor released, exposing a fistulous track between the two, 5 centimetres in diameter. Appendix thickened and twice its normal size, adherent to a black, ragged area 2 by 2 centimetres. It was not removed, as it showed no disease and the patient's condition was very critical. On right side the tumor was adherent to the anterior abdominal wall over an irregular area, 6 by 3 centimetres, running down to cornu uteri. This area was scraped free of pus and lymph and covered with peritoneum from side to side. Ragged area on colon covered in by base of appendix, which was sutured over it with interrupted catgut ligatures. Silk sutures were used to close the opening in the colon. Abdominal cavity thoroughly irrigated. Salt solution infusion (500 cubic centimetres) under



CASE 3.

breasts, 500 cubic centimetres of this solution left in the abdominal cavity. Pulse before operation, 132; after, 150.

First Day.—On returning from operating room the pulse was 136, having dropped 14 beats in twenty minutes; foot of bed elevated; 5 o'clock in the evening, pulse 128; 9 o'clock, 120; 12 o'clock, 108. Patient comfortable and complaining of little pain.

Second Day.—Pulse 103, temperature 99.4° F.; patient complained of pain during the night, but slept three hours; 12 o'clock noon, pulse 104, temperature 99.4° F.; 6 o'clock, pulse 104, temperature 100.4° F. Comfortable day. Foot of bed lowered.

Third Day.—Passed an uncomfortable night. Pulse 104.

temperature 90.4° F. Afternoon, patient comfortable, pulse 100, temperature 98.8° F. Small liquid movement.

Fourth Day.—Pulse 96, temperature 99° F. Considerable pain in abdomen.

Fifth Day.—Temperature 98° F., pulse 90. Patient had a comfortable night.

Sixth Day.—Pulse 80, temperature 98° F.

Tenth Day.—Convalescence has been uninterrupted. Dressings removed from abdomen; union of incision *per primam*.

Patient sat up on her twentieth day.

Bacteriological Report of Case.—Pus from the suppurating loculus of the cyst contained many bacteria; 2 cubic centimetres injected into the flank of a guinea-pig caused death in twenty-four hours from general infection. Culture tubes made at the time of the operation and from the autopsy on the guinea-pig became contaminated, consequently it was impossible to arrive at a definite diagnosis as to the species of bacteria present. In view of the fact that the loculus was in communication with the intestine, it was most likely a mixed infection.

PRELIMINARY NOTE ON A METHOD FOR THE CURE OF GONORRHEAL SALPINGITIS.

BY

ROBERT T. MORRIS, M.D.,

New York.

MY first case of gonorrheal salpingitis treated by the method here detailed was operated upon at the New York Post-Graduate Hospital on March 12th, 1897. The patient, 26 years of age, contracted gonorrhea when 16 years of age, and since that time has not been free from profuse gonorrheal leucorrhea until the date of operation named. With opportunities for obtaining the best medical services, she had been treated by physicians in America and in Europe without success. I opened the peritoneal cavity at Douglas' cul-de-sac, separated the right oviduct from adhesions, pulled the oviduct into the vagina, inserted a small hard catheter, closed the fimbriated extremity about the catheter with two turns of a narrow rubber band, to prevent regurgitation of fluids, injected through the catheter a seven-volume preparation of H_2O_2 , which directly appeared foaming at the os uteri, and continued this injection for a full minute for the purpose of cleansing the lumen of the oviduct and of the uterus from all purulent matter. A two per cent solution of

formal was then injected in the same way for two minutes. The rubber band and catheter were removed from the right tube and the process was repeated upon the left tube. The left tube was occluded at the uterus, but the H_2O_2 suddenly burst through the obstruction just as the ballooned tube was apparently on the point of bursting, in which latter event it would have been excised. A microscopical examination of the discharge from the cervix had been made before operation and the gonorrheal nature of the case definitely determined. After replacing the oviducts in normal position the small wound in the vagina was drained with a wick for one day. The patient suffered no inflammatory reaction of importance. On the fifth day after operation she was allowed to sit out of bed, and on the seventh day she returned to her home, indulging in sexual intercourse shortly afterward, as I had neglected to advise her not to do so. On the sixteenth day after operation she returned for the purpose of allowing me to obtain a specimen of uterine discharge for the microscope. She was elated at the results of treatment, stating that she had been entirely free from leucorrhea for sixteen days and for the first time in ten years. A small amount of mucus from the cervix was obtained. An extensive examination of this mucus by Dr. H. T. Brooks showed a very few gonococci in squamous epithelial cells, indicating that infection was lurking in the mucous crypts of the cervix. I am now injecting the lumen of the cervix with formal solution, in the hope of eventually eradicating all of the gonococci. The results of treatment in this case and in a series of selected cases of gonorrheal salpingitis will be published later.

49 WEST THIRTY-NINTH STREET.

A CONTRIBUTION TO THE PATHOLOGY OF THE FALLOPIAN TUBES.

BY

HENRY W. BETTMANN, M.D.,
Pathologist to the Cincinnati Hospital,
Cincinnati, O.

IN the field of gynecology surgery has done more for pathology than pathology for surgery. One would expect a different sequence; pathology should explain and indicate what surgery

should undertake. Anatomy and pathology are commonly reckoned among the primary departments of medicine; and yet the surgery of the abdominal and pelvic viscera has outstripped their pathology, and a clear insight into histological anatomy and pathology became possible only after surgery had reached a high degree of development. While the surgery of the ovaries and tubes is far advanced, our knowledge of their histology and pathology is limping but slowly to definite conclusions. The text books are contradictory and confusing; the student who expects to extract truth from them will soon be lost in a labyrinth of truth and fiction. The histology of the tubes seems simple enough, and yet all the efforts of the past ten years have not availed to dispel the old mythology of mucous villi, glandular in-dippings, and layers of epithelium. Henle, indeed, gave us a good but incomplete description, but recent writers have sought to improve upon him. The well-known text book of Stöhr describes the tubal mucous membrane as composed of ciliated epithelium, a tunica propria rich in connective-tissue corpuscles, a very thin muscularis mucosa, and a submucosa. This description is quoted by many authors. As a matter of fact, the mucosa itself is very thin and well supplied with connective-tissue and muscle fibres. A distinct muscularis mucosa and submucosa are purely imaginary. The mucosa is sometimes so thin that the ciliated epithelium seems to rest almost directly on the muscle fibres of the muscular coat.

It is difficult to dispel the false notion of the existence of glands in the mucosa. In the last edition of Thomas' "Diseases of Women" appears the following naïve quotation: "Within the mucous membrane Mr. Bowman discovered tubal glands which consist of grape-like structures extending downward toward the subjacent muscular fibres. . . . These compound glands of the Fallopian tubes are lined with epithelium of basement form . . ." The student who memorizes these words and tries to connect them with what he sees in the laboratory is apt to be puzzled.

Ferrata¹ in 1892 described the tubal epithelium as normally composed of two layers; in pathological cases, he says, it may become one-layered and flatter.

H. C. Coe² says that the mucous membrane is covered by a single layer of ciliated columnar cells, beneath which are two or three supporting layers of cells, round and pyriform in

¹ See Frommel's Jahresbericht, 1893, p. 599.

² "American System of Gynecology." 1887. vol. i., p. 164.

shape. True it is that very oblique sections do occasionally give rise to such an appearance, but otherwise the existence of these supporting layers of cells has no basis in fact. Even J. Whitridge Williams,¹ to whom American pathologists owe so much, describes a basement membrane under the epithelium. A most careful search through many specimens has convinced me that no basement membrane exists; and I can agree fully in this respect with Mary A. Dixon Jones, who also was unable to detect a basement membrane.

Errors which have once crept into the literature of medicine are hard to eradicate. This will be the case as long as authors are content to copy one from the other. That the tubal mucous membrane has no true villi may be evident to all who will take pains to make serial sections of the tube. Yet Cornil and Terrillon,² in their admirable paper, describe the mucous membrane as "bristling with vegetations and villousities."

Frommel³ in 1886 made an effort to establish the histology of the tubes, and by sections and pictures showed clearly that there is but one layer of epithelial cells; that there are no glands; and that there are no villi, but that the semblance to villi is caused by the longitudinal folds of the mucosa.

Williams made a careful study of normal tubes, confirmed fully what Frommel had done, and discovered that the arteries of the tubes of parous women are often the seat of endarteritis obliterans. He also described the occasional occurrence of diverticula of the mucous membrane into the muscularis. Such diverticula were also seen by D'Horthman, who, however, could not connect them with the lumen of the tube, and came to the doubtful conclusion that they were remnants of the Wolffian body. Mary A. Dixon Jones⁴ has also devoted careful study to the histology of the tubes. She confirms the opinions of Frommel and Williams, and describes minutely the arrangement of the muscular fibres in the mucosa and muscularis. I am inclined to believe she has indulged in hyperminuteness, and that the subperitoneal layers of oblique fibres are not constant features; but her discussion of the physiology of the muscularis is brilliant, original, and suggestive.

At all events investigation leaves no doubt as to the following facts:

¹ American Journal of Medical Sciences, 1891, pp. 377, 388.

² Archiv de Physiologie, 1887, 3e. série, x., pp. 529-559.

³ Centralblatt für Gynäkologie, 1886, pp. 442, 443.

⁴ AMERICAN JOURNAL OF OBSTETRICS, June, 1894, p. 790.

1. The epithelium is a single layer of columnar ciliated cells.
2. The mucous membrane has longitudinal folds. There are no villi. The arrangement of the folds is due to the activity of the muscularis mucosæ and muscularis, and is very variable.
3. There is no basement membrane; no submucosa and no muscularis mucosæ distinct from the mucosa proper.
4. There are no tubal glands.

It is unfortunate that modern text books have not all kept pace with the development of these facts.

The pathology of the tube is a subject of much interest and practical importance, but our knowledge is still very deficient.

Inflammations and enlargements of the tube formerly masqueraded under the titles of pelvic peritonitis and cellulitis. Older text books disregard inflammations of the tubes entirely, nor do all recent books give them their due attention. In Robert Boyce's "Text Book of Morbid Histology" just eight out of four hundred and seventy-seven pages are devoted to the Fallopian tubes. It remained for surgery to show that tubal pathology is important, and to-day the tubes are considered the most important feature in the majority of chronic gynecic ailments. The terms tubal pregnancy, salpingitis, etc., are old, but an understanding of their frequency and importance is recent, and we have not as yet arrived at a good classification or a right conception of tubal inflammations. We are learning that tubal inflammations may be caused by a variety of infections and in a variety of ways: from the uterus, from the bowels, from the peritoneum, from the appendix, and through the circulation. We are learning there is no sharp dividing line between purulent and catarrhal inflammations, and that they pass imperceptibly the one into the other.

The development of our knowledge of tubal pathology has been slow and unsatisfactory. The older writers were content with a classification into acute and chronic, catarrhal and purulent. They did not separate clearly disease of the wall from disease of the mucosa. Kaltenbach¹ was the first to call attention to a condition of the tube characterized chiefly by hypertrophy of the muscular wall without dilatation of the lumen. He describes a gonorrheal tube as follows: Right tube as thick as the little finger; lumen narrowed; infundibulum closed; a small quantity of blood in the canal. The ciliated epithelium replaced by short cylindrical epithelium. The tube wall in microscopic section 1.5 to 1.75 centimetres in half-

¹ Centralblatt für Gynäkologie, 1885, pp. 677-680.

diameter. Vessels in wall dilated; here and there small hematoma. The increase in thickness of wall due chiefly to hypertrophy of the muscles.

Kaltenbach adds that up to that time hypertrophy of the muscle wall without dilatation of the lumen had not been described either clinically or pathologically.

In December, 1886, Veit¹ showed similar specimens to the Gynecological Society in Berlin. During the same year Martin demonstrated a large number of preparations before the same society and gave a description of salpingitis as follows: Swelling of mucosa; desquamation of epithelium; small-celled infiltration of the mucosa and also into the muscularis. Veit at the same session separated catarrhal from interstitial salpingitis.

Martin presented another paper the same year before the Fifty-ninth Naturforscherversammlung in Berlin, and in the second edition of his "Gynecology" (1887) went deeply into the subject of tubal pathology. He gave pictures showing the macroscopic and microscopic appearances of diseased tubes, and made the following classification:

1. Salpingitis catarrhalis: Mucosa red and swollen; epithelium often intact; ecchymoses in mucosa and muscularis. Often small-celled infiltration of mucosa; occasionally the epithelium dips down into the muscularis (salpingitis catarrhalis proliferans).

2. Salpingitis interstitialis: Small-celled infiltration of mucosa; epithelium eroded; folds disappear by erosion; the lumen divided into chambers by adherent folds; muscularis infiltrated; vessels dilated; ecchymoses in wall; wall thickened; muscular fibres atrophied and replaced by connective tissue.

3. Salpingitis follicularis: A further stage of the interstitial form. Epithelial cells penetrate and ramify in the wall, making chambers filled with pus or purulent secretion.

In 1887 Cornil and Terrillon² attempted a classification which, however, has no definite "principium classificationis." They divide inflammations of the tube as follows:

1. Salpingitis catarrhalis vegetante.
2. Salpingitis purulente (pyosalpinx).
3. Salpingitis hemorrhagica (hematosalpinx).
4. Salpingitis blenorrhoica.
5. Salpingitis tuberculosa.

Of course there is no consistency in separating blenorrhagic

¹ Centralblatt für Gynäkologie, 1887, p. 74.

² Archiv de Physiologie, 1887, pp. 529-559.

from purulent salpingitis. Their description of diseased tubes is remarkably accurate, though they speak of vegetations in the tubes instead of the longitudinal folds. They made one observation worthy of note—viz., that in chronic purulent salpingitis, though the mucosa is infiltrated with small round cells, *the epithelial cells are nearly everywhere intact and retain their cilia*. They also call distinct attention to the fact that there is no suppuration in the connective tissue nor destruction of vegetations, as described by Orthman.¹

In 1887 Chiari² described a peculiar form of tubal inflammation, which he called salpingitis isthmica nodosa. He based his description on seven cases occurring in young women. Usually both tubes are affected at the junction of the pars interstitialis with the isthmus; at this point a small nodular enlargement occurs which was formerly considered a myoma, but which Chiari shows to be a diverticulum of the mucosa surrounded by hypertrophied tube wall. Sometimes two nodules may appear on the same tube. The rest of the tube has a slight catarrh. In 1888 Schauta³ gave a clinical picture of the same condition. In one year he encountered eighteen cases (!) characterized by colicky pains and diagnosed by palpation. The patients were all younger than 45 years, and five were cured by salpingectomy. Schauta thinks the disease is due to spread of inflammation from the uterus, the thickness of the tubal wall at this place preventing dilatation and resulting in the ingrowth of the epithelium into the muscular wall.

From this time on there began to be some clearness in our conception of tubal inflammations, and the text books pay more attention to the tubes clinically and become less inaccurate pathologically. It is very hard even at this day to give a lucid description of types of tubal inflammations, and no classification is satisfactory. A classification based on etiology would be desirable, but unfortunately the pathological conditions bear no definite or known relation to the exciting cause. Streptococci, pneumococci, gonococci have been found in pus tubes otherwise indistinguishable; the only forms which may justly keep a name based on etiology being the tubercular salpingitis and that caused by actinomyces.⁴ As noted above, the inflam-

¹ Zeitschrift für Geburtshülfe und Gynäkologie, 1887, Bd. xiv., p. 264 et seq.

² Archiv für Heilkunde, 1887.

³ Archiv für Gynäkologie, 1888, ii., pp. 27-38.

⁴ See the excellent reference to the literature given by Orth, "Lehrbuch der Spec. Path. Anat.," 7th Lieferung, 1893, pp. 534-5.

mation may or may not limit itself to one of the coats of the tube. A puerperal salpingitis accompanying endometritis may involve the connective tissue of the mucosa alone, leaving the epithelium and the muscularis intact. Some forms of chronic pyosalpingitis may affect only the muscular coat, leaving the mucosa and the lumen of the tube intact (mural salpingitis). On the other hand, a simple catarrh of the tube may affect all the coats, causing slight desquamation of the epithelium over limited areas, swelling of the mucosa, and infiltration of the muscular layer. An acute inflammatory process may invade destructively all the layers, and many authors mention the formation of diphtheritic pseudo-membranes in the tubes. However, I have not been able to find a detailed description of such a tube, and have never seen any condition approaching it in the tube itself, and doubt that such a condition exists. Then there may appear localized abscesses in the wall of the tube. I have in my possession a unique specimen of embolic abscess of the wall of the tube, taken from a case of puerperal pyemia in which abscesses were found besides in the liver, lungs, kidneys, myocardium, and spleen. Here a small abscess, one-sixth of an inch in diameter in the microscopic section, is found just beneath the peritoneal coat of the tube, the rest of the tube being normal.

With such a complexity of conditions, to make a complete classification of tubal inflammations is not possible. Yet there are certain conditions which recur with such uniformity and frequency that they represent types of inflammation. About not a single one of these types, however, is there at present uniformity of opinion among authors. Much has been written about interstitial salpingitis, and the type recurs again and again, yet descriptions differ widely. In Martin's interstitial salpingitis there are intense inflammation of all the coats, ecchymoses, erosions, infiltrations. In Haultain's interstitial salpingitis the thickening of the wall is largely confined to the mucous and submucous layers, the muscular layer participating only in slight degree, in some cases being entirely unaffected.¹

Boldt² describes a case of interstitial salpingitis in which the epithelia have lost their cilia but are otherwise intact, the arteries are thickened, and the mucosa and muscularis crowded

¹ F. W. Haultain : "Some Points in the Morbid Anatomy of the Fallopian Tubes," *Edinburgh Medical Journal*, December, 1890, p. 539.

² "Interstitial Salpingitis," *AMERICAN JOURNAL OF OBSTETRICS*, vol. xxi., 1888, pp. 122-133.

with pus cells. Boldt describes inflammatory corpuscles taking origin from the basis substance of the connective tissue, also from the nuclei of the connective tissue and from the smooth muscle fibres. In another case he describes *the epithelium crowded with inflammatory corpuscles and partly destroyed after having been transformed into pus cells (!)*. This description has unfortunately found a place in Garrigues' excellent text book and remains there to confound students of pathology.

Edwards¹ believes that interstitial salpingitis represents the resulting form of chronic catarrhal or purulent salpingitis, and this is certainly true in some cases. "*In the most typical cases,*" says Edwards, "*the thickened fibro-muscular wall is the only seat of the thickening and the lumen is normal.*"

Landau,² on the other hand, says he knows of no specimen showing inflammation of the muscular coat without inflammation of the mucosa.

Orth³ has given us by far the best description of the various forms of tubal inflammation. He calls interstitial salpingitis "myosalpingitis productiva," although in some cases the muscular fibres atrophy and are replaced by connective tissue, as described by Martin and Orth himself.

It can be seen from the above extracts (and the illustrations could be indefinitely multiplied) that the literature of tubal inflammations is in a chaotic state. The confusion is due partly to difficulties in the terminology, partly to imperfect methods, and partly to inaccuracies of observation and description.

One must beware of relying on the description of tubes taken from the post-mortem table. Every one who has studied the appendix knows that appendices taken from the corpse are valueless for histological study, owing to the rapid disintegration of the mucosa. The same condition holds in the tube, and I have learned to look with distrust on all descriptions by authors who use post-mortem material or fail to use good fixing methods or fresh material.

In the fall of 1893 Dr. C. A. L. Reed furnished a laboratory in his private hospital, and for over a year we carried on a systematic investigation of tubal pathology. The number of operations was large and the pathological material quite varied. Every tube removed was first subjected to examination in salt solution, and bits of the mucosa and muscularis were teased for

¹ Progrès Médical, February 16th, 1889, pp. 119-122.

² Archiv für Gynäkologie, 1891, Bd. xl., pp. 1-98.

³ Loc. cit.

fresh examination. The tubes were then fixed in Flemming's solution or in glacial-acetic-acid-bichloride solution, embedded, and cut with the microtome. I desire to call special attention in this article *to the relation of the tubal epithelium to inflammatory-processes in the tube*, and also to present a type of interstitial salpingitis. The fate of the epithelium in tubal inflammations has been a source of gross misstatement. A reference to the descriptions given above shows how contradictory are the statements of authors. H. C. Coe¹ goes so far as to say: "The presence of the tubes' lining epithelium and the persistence and motion of the perishable cilia are proof positive that no inflammatory process is present in the tube"; and elsewhere²: "If moving cilia are found in a tube soon after its removal there can be no extensive inflammation of the mucosa." As the result of my examination of fresh tubes in normal salt solution I make the statement that *the ciliated epithelium is wonderfully resistant, and living ciliated epithelium is present in almost every tube, no matter how far advanced the inflammation*. The following descriptions may serve as illustrative of the large series examined.

Mrs. H. Operation of double salpingectomy performed June 12th, 1894. *Right tube* bound down by very numerous adhesions and covered from distal to proximal end by yellowish-brown bloody masses, the remnants of hemorrhagic and inflammatory exudations. Nothing is left of the fimbriæ; the distal end of the tube is simply a rough, irregular crater, lined internally with a patched reddish and grayish membrane. The tube is irregularly thickened throughout its length. By teasing bits of the tube and examining in normal salt solution the following facts were revealed: The crater-like distal end was partly denuded of epithelium, the grayish patches being simply the bared and anemic muscularis. The reddish patches were composed of mucosa with beautiful capillary plexuses. *The cilia of the lining cells were in very lively motion*. Teased preparations were also made of the central and proximal parts of the tube; the epithelium in both places was intact *and the cilia were moving actively*.

Left Tube.—Uterine end normal. Distal end covered with fibrous adhesions obliterating the free opening. No fimbriæ. The end simply a small crater as in the other tube. *The cilia at both ends of the tube in lively motion*. Both tubes were filled with a bloody fluid in which floated, besides red corpus-

¹ "American System of Gynecology." 1887, p. 165. ² Id., p. 167.

cles, a large number of granular and fatty cells. These cells are round, oval, and columnar; the granules partly dissolve in ether. The cells are leucocytes filled with granules and fat globules, and also probably degenerated epithelial cells.

CASE 511.—Mrs. B. Operation March 21st, 1894. Double salpingectomy. *Left tube* as thick as the little finger. The lumen of the tube is unobstructed. The wall is enormously thickened, the changes throughout being limited to the muscular coat; this is infiltrated with round cells, which, as a rule, follow the direction of the blood vessels encircling the tube. The process is evidently chronic and uniform. The mucosa is normal. This tube was teased five hours after removal. *The cilia were in lively motion throughout the whole length of the tube.*

CASE 513.—Mrs. F. Operation March 22d, 1894. Extirpation of the right ovary and right hydrosalpinx. Extirpation of half the left ovary with tube.

Description of Right Tube.—Macroscopically: The distal end of the right tube was dilated into a sac the size of a small peach. This sac was adherent to the ovary, but could be detached without tearing. The tube was considerably thickened throughout its whole length. In salt solution: One hour after removal the contents of the cyst and the tube were examined. The cyst was filled with fatty leucocytes. The tube contained pus cells, granular leucocytes, and large round cells filled with fat globules. *The epithelium in the cyst and the tube was normal. The cilia everywhere were in lively motion.* Microscopically about one inch from sac: Total thickness of the tube much increased. The lumen is filled with granular débris which stains a pale yellow with alum-carminé, being evidently the remnants of epithelial cells and leucocytes. The epithelial lining of the mucosa is intact, with well-preserved cilia. Here and there the epithelium is wanting. In the folds of the mucosa there is everywhere an increase in the nuclear elements; in some places the small round cells accumulate in large numbers, resembling purulent foci. The musculo-fibrous coat of the tube is much thickened. The number of nuclear elements is increased, and small round cells have diffusely infiltrated the muscularis.

These three cases represent three very different conditions of the tube—namely, a far-advanced catarrhal salpingitis complicated with violent perisalpingitis, a typical interstitial salpingitis, and, finally, a diffuse salpingitis. In all of them the epithelium

was more or less intact, and in all the cilia were found active. The number of cases could be multiplied, and cases representing almost every pathological condition could be cited in which the epithelium was nearly normal¹ and in which live cilia survived. Even in extensive suppuration of the tube the ciliated epithelium may preserve its function, although pus cells may invade the whole mucosa and the muscularis. From this fact we may conclude that at least one of the accepted explanations of extrauterine pregnancy is false. We may feel sure that the fertilized ovum is not arrested midway in the tube or in the uterine horn for want of ciliated epithelium. It is remarkable how long the uterine half of the tube preserves its integrity; tubes whose distal ends are embedded in adhesions and infiltrated with pus cells may be, and usually are, perfectly normal in their uterine ends. So constant is this fact that we are justified in doubting the commonly accepted belief that the tube always becomes inflamed by extension from the uterine mucosa. It is difficult to find a tube showing abnormality of the mucous membrane in the uterine third. It is not altogether improbable that the lymphatics play a far larger rôle in tubal inflammations than has hitherto been supposed. Poirier has pointed out the very close relation between the lymphatics of the tube with those of the upper part of the uterus, and of the latter with the lymphatics of the cervix. It seems probable that cervical tears and inflammations may lead directly to tubal infiltrations and disease through the lymphatic system without following the path of the mucous membranes, and this will be made the subject of another paper.

It is in this connection that the study of interstitial salpingitis becomes so interesting. The chief seat of disease in this affection, as the name implies, is the middle coat. The participation of the other coats varies in different cases, but the middle coat is always the most greatly altered. The condition of the mucous membranes varies in different cases. The typical condition, that is, the one most commonly met with, is that described above as Case No. 511, Mrs. B.; the mucosa is little altered or normal. The chief changes take place in the muscular wall. The most noticeable feature macroscopically is the great thickening and rigidity of the tube, so that it often reaches the thickness of the little finger and rarely that of the thumb. This thickening of the middle coat is due to hyper-

¹ In all about thirty tubes were examined in the fresh state, and in all but three living ciliated epithelium was found.

plasia of the muscle fibres, diffuse infiltration with leucocytes, and to the formation of new connective tissue. In some cases infiltration is the chief thickening process; in others, hypertrophy, giving rise to Orth's designation, "myosalpingitis productiva"; and in other cases the tube wall seems to be composed almost wholly of dense connective tissue. The serous coat of the tube is often unaffected, but quite commonly the seat of adhesive inflammation—especially is this true at the distal end; the fimbriæ are often glued together so as to be indistinguishable; the end of the tube is often adherent to the ovary, and very often the distal end presents what has been described above as a crater-like depression lined with injected mucous membrane but without a trace of fimbriæ. The chief characteristics, therefore, of salpingitis interstitialis may be summarized as:

1. Comparative integrity of the mucous coat.
2. Thickening and infiltration of the muscular coat.
3. Perisalpingitis, especially at the distal end, obliterating the fimbriæ and causing adhesions to the ovary.

It occasionally happens that the mucous membrane becomes thin and atrophic, as the following description exemplifies:

Mrs. C. Left tube removed June 19th, 1894. The tube is twice the normal thickness and very firm to the touch. It is covered with fibrinous adhesions. The fimbriated end is totally adherent to the dilated and suppurating ovary. The mucous membrane is beautifully injected with capillaries, but excessively thin throughout the whole length of the tube. The epithelial coat is almost entirely absent, and no trace of cilia remains. The thickening of the muscular wall is due chiefly to infiltration with leucocytes. It is probable that in this case diffuse suppuration of the tube leading to abscess of the ovary was followed by atrophy of the tubal mucous membrane and organization of many of the exuded leucocytes in the tube wall. Atrophy of the mucous membrane is not very rare, but may still be associated with preservation of ciliary motion, as the following case will show:

CASE 516.—Mrs. McG. Operation April 3d, 1894. Removal of large multilocular cyst of the right ovary. Removal of monolocular cyst of left ovary and left tube.

The left tube is hard and fibrous; when cut transversely the mucous membrane does not protrude as usual and bulge into the lumen. With forceps it is difficult to pull off bits of the mucosa, which seems everywhere very thin or altogether

wanting. Under the microscope the epithelial cells are very scanty, the larger part of the teased particles being muscular tissue, but here and there are ciliated cells with the cilia in lively motion.

It is very desirable that more attention be given by gynecologists to the pathology of the tubes, as thereby light may be ultimately thrown on the etiology of tubal disease. It is well to bear in mind the facts brought out in the foregoing paper:

1. A disease of the tube wall is very common, quite independent of involvement of the mucosa, and in all probability not due to spread of inflammation directly from the uterine mucosa.

2 The tubal mucous membrane is exceedingly resistant to disease. The ciliated epithelium persists in an astonishing majority of cases of even extensive disease of the tube.

426 WEST EIGHTH STREET.

DEVELOPMENT OF A SCIRRHOUS CARCINOMA IN THE SCAR THREE YEARS AFTER VENTROFIXATION.

BY

JAMES McCONE, M.D., M.R.C.S. Eng.,
Assistant to the Chair of Obstetrics, University of California,
San Francisco, Cal

(With one illustration.)

THE exceptional nature of this interesting case is my excuse for recording it in THE AMERICAN JOURNAL OF OBSTETRICS. The patient, Hannah H., age 49 years, applied for admission into the San Francisco City and County Hospital September 1st, 1896. She offered the following history: Three years and a half before date of admission she was operated on for retro-displacement uteri. Ventrofixation was performed; the tubes and ovaries were not removed. A few months before admission the patient noticed a swelling in the scar. This slowly increased in size, was painless, so patient paid no attention to it. For three weeks before coming to the hospital patient suffered from severe cough, and pain over the right infraclavicular region. The pelvic history was negative. Menopause five years ago, and since operation no discharge from the vagina. No pelvic pain or discomfort.

Examination.—*General:* Marked emaciation and paleness.

A mass the size of a walnut in the scar. The skin was movable over the mass. The right inguinal gland was enlarged to the



Scirrhus carcinoma in cicatrix after ventrofixation of the uterus.

size of an almond. *Pelvic:* Vulva and vagina presented post-climacteric changes; the cervix uteri was small, and the uterus was slightly fixed forward. Prof. von Hoffmann and I could

separate the fundus uteri from the mass in the scar. The ovaries and tubes presented no palpable abnormalities.

Further History.—A plaster cast was taken of the growth and the patient given potassium iodide for four weeks. The new growth increased in size, the inguinal gland grew larger, and a nodule appeared over the third right costal cartilage. The cough became more and more severe, and finally the patient died, February 10th, 1897.

Post-mortem.—Abdomen opened by an incision along the costal margin, and the wall was turned back. The uterus was found forward, elongated and adherent to the abdominal wall. There were several nodules about the scar of union between abdominal wall and uterus. The cervix uteri was patent, but the cavity of the uterus above the internal os was obliterated and the corpus uteri attenuated. The new growth in the scar was not continuous with the uterus, but a sulcus dipped between fundus and tumor. The ovaries and tubes were not involved. The vermiform appendix passed from the cecum on the right side, across the band of union between the uterus and abdominal wall, and was firmly attached to this band on the *left* side. The liver presented many areas of cancerous infiltration. The nodule over the third costal cartilage had grown rapidly and was firmly adherent to the ribs.

Microscopical examination of specimens showed the presence of a *scirrhus carcinoma*.

The interesting features in this case are:

1. The appearance of a new growth in the scar.
2. The probable source of a scirrhus carcinoma in this location.
3. The influence the chronic irritation and dragging, after ventrofixation, may have had on the development of carcinoma.
4. The attachment of the appendix to band of union between uterus and abdominal wall.

1132 SUTTER STREET.

CORRESPONDENCE.

HEMORRHAGE FROM PREMATURE SEPARATION OF THE PLACENTA.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS.

DEAR SIR:—The following obstetrical case came under my notice a short time since. Being something new in my experi-

ence and involving a point that I have never seen discussed in obstetrical literature, I think perhaps it might be of some interest to the profession at large.

Saturday evening, March 19th, 1897, I was called to attend Mrs. M., who lived ten miles in the country, the messenger reporting that she had been sick for several days without medical attendance. I arrived at 9:30 P.M., and found not only a physician present, but that he had been to see her daily since Tuesday. The patient was unconscious; pulse scarcely perceptible and very rapid. She was restless and moaning. I obtained the following history: Tuesday morning the membranes had ruptured and a profuse amount of fluid passed away. The doctor was sent for, arrived in the evening, made an examination, said, "The apple will fall when it gets ripe," and went on his way. Wednesday at 3 o'clock A.M. contractions came on and were very strong for five hours, when they stopped altogether. The doctor came in the evening and said the patient was tired and that labor would begin when she was rested. As she was restless he gave her a hypodermatic injection of morphia. The patient soon sank into a stupor, and so remained until I arrived at 9:30 Saturday evening. I found that there had been complete suppression of urine since Wednesday, and no movement of bowels since that time. Upon making a vaginal examination I found the child dead, head presenting, the os soft and dilatable, and no evidence of any amniotic fluid. I told the husband that I saw no hope for his wife, but he insisted that she should not die undelivered; and I consented to apply the forceps. I introduced a catheter, but there was not a drop of urine in the bladder. And now comes the strange feature of the case: immediately upon introducing the first blade of the forceps there flowed out, as nearly as I could judge, a good quart of very dark blood. When I delivered the child about as much more of the same nature followed with the placenta, but no hemorrhage after that, although there was complete uterine inertia from start to finish, not the slightest contraction was I able to induce in any manner. The blood was apparently in the uterus, dammed up by the child's head, and the sinuses closed by clots.

The only solution of the case that appears reasonable to me is this: During the five hours of labor on Wednesday, after liquor amnii had drained away, the placenta was separated from its attachment; the uterus filled up with blood, which was held there by the pressure of the child's head upon the os; but

having never met a case of that kind in seventeen years of practice or seen one reported, I did not think it could be until the conclusion was forced upon my mind by the events related. Patient died at 7 A.M. Sunday, March 20th.

J. H. BENNETT, M.D.

BOYNE CITY, MICH., March 25th, 1897.

TRANSACTIONS OF THE SECTION
ON GYNECOLOGY, COLLEGE OF PHYSICIANS
OF PHILADELPHIA.

Meeting of March 18th, 1897.

J. M. BALDY, M.D., *in the Chair.*

ANTISTREPTOCOCCIC SERUM.

DR. BARTON COOKE HIRST reported cases in which anti-streptococcic serum was used.¹

DR. RICHARD C. NORRIS reported

A CASE OF PUERPERAL SEPSIS SUCCESSFULLY TREATED
WITH ANTISTREPTOCOCCIC SERUM.²

DR. GEORGE ERETY SHOEMAKER reported

SEPTICEMIA FROM SELF-INDUCED ABORTION; SERUM
INJECTION; AUTOPSY; BACTERIOLOGICAL REPORT.³

DR. EDWARD P. DAVIS reported

A MARKED RESULT IN THE TREATMENT OF PUERPERAL
SEPSIS OBTAINED BY THE USE OF SERUM;

also,

TWO FAILURES OF THE SAME METHOD OF TREATMENT.⁴

DR. J. M. BALDY reported

ANTISTREPTOCOCCIC SERUM IN A CASE OF ACUTE PUERPERAL
LYMPHANGITIS AND PHLEBITIS.⁵

DR. JOHN B. SHOBER made a statistical report.⁶

DR. A. C. ABBOTT.—While I have accepted your polite invitation to open this discussion, I trust you will bear in mind that I have had no personal experience with the clinical use of this therapeutic agent; I am obliged, therefore, to restrict my remarks to the principles involved in its preparation and action.

The evolution of our knowledge upon the subject of serum

¹ See original article, p. 625. ² See p. 629. ³ See p. 637. ⁴ See p. 642.
⁵ See p. 645. ⁶ See p. 647.

therapeutics in general has been so closely associated with, and so directly dependent upon, the studies relating to immunity and protective inoculation, that it is impossible to properly comprehend the former without a fair degree of acquaintance with the developmental phases of the latter.

Whatever is known to-day upon either or all of these subjects is the result of investigations that were suggested by the old observation that a single, non-fatal attack of many forms of infection often leaves the patient proof against subsequent attacks of the same malady.

The older practice of inoculation in small-pox, and the subsequent successful efforts of Jenner to protect human beings against this disease by inducing in them a condition that was in certain respects analogous to small-pox, though greatly modified in degree, are the earliest recorded efforts on the part of man to establish such protection in human beings against contagious diseases. From the time of Jenner's triumphant demonstration until the observations of Pasteur on chicken cholera in 1880—to the effect that, with modification in the degree of virulence of the causative micro-organisms, the disease resulting from their pathogenic activities became non-fatal and protected the fowls against subsequent infection with the fully virulent virus—nothing of importance was done upon this subject.

It is not my intention to review in detail the enormous amount of fundamental research that has been brought to bear upon this subject since 1880. It will suffice to mention in brief some of the more important results of these studies that are now regarded as fixed.

In the first place, we now know that it is possible to confer immunity upon animals from a large number of infectious diseases by inducing in them a non-fatal expression of the malady. This may be accomplished:

First, by vaccination with the living micro-organisms that cause the disease against which we desire to immunize the animal. Such vaccination may be practised with so small an amount of infective material as not to cause a fatal infection; or, as is more often the case, with larger amounts of such material that has been artificially attenuated in the degree of its virulence.

Second, protection may also be afforded in a number of instances through the introduction into susceptible animals of the poisonous products of growth of the bacteria that cause the disease against which we desire to immunize the animal. In some cases the potency of these poisons is reduced in degree by very high dilution in inert fluids; in others it is modified by exposing the poisons to particular chemical and thermal influences. In all the object aimed at is to induce a tolerance on the part of the animal to doses of the poison that would otherwise prove fatal.

Third, we have learned also, through the classical researches of Behring and his associates, that in a number of instances

animals that have been rendered immune artificially to certain infections have in the serum of their circulating blood a something which has the property of endowing other susceptible animals into which it may be injected with immunity of a like kind; and that in several instances this serum is seen to possess actual curative virtues for the disease, even after it has been in progress for a time.

These, then, represent the important bare facts on which our knowledge of the subject at present rests. Though the same end is apparently reached by either one of these procedures, still there are important, though not at first sight manifest, differences in the results obtained. Thus, for instance, the protection that follows upon a non-fatal attack of an infectious disease contracted in the natural way, or that observed in the animal which has survived inoculation with the living virus, is usually more lasting than that which is induced through the injection of serum from an immune animal. According to Ehrlich's idea the gradual tissue reaction incidental to natural infection is more general, and more fruitful in the production of protective substances, than is that induced by the injection of serum from an immune animal, where, as he regards it, one simply transfuses the already formed antidote from one animal, in which it has been formed as a result of profound tissue reaction, into another in which no such tissue changes have as yet occurred, and in which they do not usually conspicuously occur as a result of the injection, if we can judge by the clinical evidences that are manifested by cases into which such serums are injected.

To the immunity that appears with survival from infection Ehrlich gives the name "active" immunity, while to that induced by the use of serum from previously immunized animals he gives the designation "passive" immunity.

While what has preceded may have little apparent bearing upon the topic under discussion, still a clear conception of those phases of the subject is essential to an understanding of the problems involved in serum therapeutics in general.

It is needless to say that the observation of greatest moment to the treatment of disease by the serums from immune animals was that of Behring and Kitasato, in which it was shown that tetanus in animals could be cured by the use of serum from an animal artificially immunized from tetanus. This was shortly followed by similar observations on diphtheria. The time at our disposal will not permit of the enumeration of the various forms of infection that have served as subjects for investigation from this standpoint. The practical application of the method to the cure of disease in man is as yet hardly more than begun. It would be rash to predict its ultimate outcome. In one instance—viz., diphtheria—the results require no comment. With other diseases, such as typhoid fever, cholera, erysipelas, bubonic plague, tuberculosis, and certain suppurative processes, the outlook is promising, but final opinion must be reserved until after the wider application of the method.

With regard to the topic under discussion this evening: We have heard in detail the experiences of several trustworthy clinicians with the antistreptococcus serum, and they have not been uniform. In the absence of definite bacteriological proof that these infections were of streptococcus origin, it is reasonable to assume that the discrepancies are in part due to the employment of the serum in forms of disease against which it could not reasonably be expected to act, for as yet we must regard a serum as *specific* only for those infectious processes caused by the micro-organism from which the animal supplying the serum was protected.

Again, as in the case of diphtheria, the stage of the disease may be, and most probably is, an important item—*i.e.*, the earlier the period at which the serum is injected the more likely are favorable results to ensue. The discrepancies may also be in part due to variations in the potency of the different specimens of serum employed—variations referable to mode of preparation and of preservation.

And, lastly, the opinion that this serum is specific for all conditions resulting from the invasion of pyogenic streptococci may be unwarranted. In late years bacteriologists are practically at one in the opinion that all pathogenic streptococci are identical, but it is just possible that important differences in their pathogenic peculiarities may be detected by the use of serum from animals immunized from infection by streptococci from different sources, though I confess I hardly anticipate such a result.

Bearing in mind a clinical peculiarity of streptococcus infections—*viz.*, that of a tendency to recur—one might reasonably assume that, if in the person naturally recovering from this form of disease there was not sufficient protective substance elaborated by the tissues to prevent a recurrence of the same malady, the serum from animals rendered antitoxic by repeated, purposely-induced, non-fatal attacks of the disease would also prove disappointing when employed as a therapeutic agent in man. In this connection it is only necessary to state that in all efforts to prepare serums for therapeutic use the animal under treatment is artificially brought to a higher stage of immunity than is probably ever seen in man after recovery from infections experienced in the ordinary course of life.

DR. E. E. MONTGOMERY.—I have listened with much interest and pleasure to the presentation of cases by different gentlemen, and the explanation of the action of serum as given by Dr. Abbott. The subject is one in which I have had considerable interest, having presented a report nearly a year ago before this Section on the treatment of septicemia by antitoxin, and having read a paper before the American Medical Association at its meeting in Atlanta in May last. I do not think the careful selection of cases for treatment by antitoxin can be better demonstrated than in those which have been reported to-night. There is no question whatever but that, in those cases in which

the disease has gone on to the formation of local abscess in which the continuation of the poison is resulting from its diffusion from the local deposit, the use of antitoxin is not so effective as would be the evacuation of the collection. In all septic cases we endeavor, of course, to secure immunity as quickly as possible, and in this we should not necessarily confine ourselves to the use of antitoxin, but employ all agents which past experience has demonstrated are beneficial in rapidly establishing it. No one should feel justified in trusting to antitoxin alone, but should use such agents as quinine, strychnine, suitable feeding, stimulants, with the view of holding up the health of the individual to the highest standard. Before deciding upon the use of the antitoxin careful examination should be made in order to determine whether we are dealing with sapremia or septicemia. Thus, after an abortion or delivery the patient may be suffering from sapremia, or putrid intoxication from retention of decomposing products. In cases in which the poison is not due to the streptococcus, certainly the antitoxin is contraindicated and would be prejudicial: whereas, in the absence of the streptococcus infection, we are adding an additional poison which may produce sufficient excitement to carry the patient over the border and destroy her life. In such cases as we can readily accomplish it, it is certainly preferable that a bacteriological investigation should be made; but where the case of poison is virulent, where the disease has rapidly developed, the time lost in waiting for the establishment of the diagnosis by bacteriological investigation would probably cost the patient her life and result in the use of the agent at too late a period. In critical cases, then, examination should be made of the patient and the uterus should be carefully explored with the finger. If a patient with a high temperature and other symptoms of septicemia presents a uterine cavity with a clear, smooth surface, free from masses which are undergoing putrefactive changes, I should certainly feel that I was failing in my duty to the patient if I did not give her an injection of antitoxin.

My attention was first brought to the consideration of this subject by a patient under my observation over a year ago—a woman whom I saw some four days after delivery, with considerable elevation of temperature, between 103° and 104° , pulse 120 and very weak. On examination of this patient there seemed to be a slight amount of exudation in the pelvis on one side. I proceeded to curette the uterus, finding nothing abnormal; opened the vagina and removed a slight exudate of lymph from Douglas' pouch. The uterus and pelvis were thoroughly irrigated with normal salt solution, and gauze drainage was used in both the uterus and pelvis. As we were cleansing the vagina for this procedure it was noticed to be very red, its walls thickened, edematous, and covered with a profuse, thick, glairy mucous discharge. Two days subsequently there was an extension of inflammatory blush from the vulva toward the buttocks. This condition continued for the next three

weeks, in spite of measures which had been taken with a view of building up the patient's strength with strychnine hypodermatically, quinine in good doses, stimulants, the use of normal salt solution by hypodermocleisis, and the internal administration of nuclein. Her temperature still continued at $104\frac{1}{2}^{\circ}$. It had during this period at times been as low as 101° . At the end of three weeks the greater portion of her body had been covered by the extension of the erysipelatous blush. The only portion at that time which had not been involved was the legs to the knees, down the arms from the elbows to the hands. The face was at no time involved. At this time there was a secondary blush, apparently starting in the vulva. We gave her an antitoxin injection which was procured from the Gibier Institute, New York, a dose of twenty-five cubic centimetres, which was repeated for three days, and half the dose for two days subsequently. After the first dose the patient's temperature decreased and convalescence was subsequently uninterrupted. Of course it is true that this patient had suffered from the condition for three weeks, and at the end of this period we would naturally expect her to secure immunity without such an agent, but the change after its administration was so very rapid that I could not but feel that it had been efficacious in accomplishing the good result.

I will speak of two cases coming under the observation of my assistant, Dr. Fisher—one, a woman with sepsis, who was confined in a house where a patient had previously died from puerperal sepsis, and was attended by the same midwife. In the case of the first patient the midwife had succeeded in producing an inversion of the uterus, and Dr. Fisher returned the uterus, and in the subsequent development of sepsis removed that organ. The patient, in a moribund condition, was given the antitoxin without effect. The second patient, when he saw her, was in a state of active septicemia, with an exudate extending over the lacerations of the vagina. She was at once given a dose of Marmorek's antitoxin. The result of the first dose was a decrease in temperature and desquamation of the vaginal exudate, a subsidence of the unpleasant symptoms, and the patient recovered. These are two cases illustrating the success of the plan of treatment in which the disease was evidently due to streptococcus infection.

DR. R. C. NORRIS.—The case I reported was, to my mind, a very remarkable one, and forced me to believe that I happened to meet the kind of case likely to be benefited by anti-streptococcic serum. We should not, however, let this subject pass without calling attention in the most emphatic manner to the fact that the serum is not a cure-all, and that we must not administer it to patients at any time we happen to see them with any variety of infection and expect good results. There was a time when we were dealing with the problem of curetting the puerperal uterus, and every case of septicemia was curetted—some cases died, others recovered. As the years have gone on we have found there is a rather limited field for the curette

in cases after labor at term, and we have ascertained in what cases it will be of value and in what cases it will do harm. I believe as months and years go by we will learn what class of cases the serum will benefit. The uncertainties of our knowledge of serum therapy, as pointed out in my paper, are so important that I am sorry some one better informed than myself has not made an attempt to enlighten us. We must know more about the action of this means of treatment before we can use it in a scientific manner. It goes without saying that if we do not know how a drug acts we cannot use it scientifically. Dr. Abbott has remarked that it will be difficult to find a serum for one kind of infection and another serum for another kind of infection, and yet that difficulty must be overcome by pathologists if we, as clinicians, wish to employ serum therapy with success.

In Dr. Shoemaker's case, for example, the finding of the bacillus coli communis explains why the antistreptococcic serum failed to help the patient.

In Dr. Hirst's second case the blood current doubtless was loaded with millions of micro-organisms, and in that case we would not expect the serum to work such a miracle as a cure, even if the case had been one of pure streptococcus infection.

Dr. Davis' first case was doubtless one of sapremia, and the use of the curette detracts from the possible value of the serum.

If one fact in serum therapy has been demonstrated it is that diphtheria antitoxin has been of great value in diphtheria. There are very few scientific men who gainsay this. Along the same lines of investigation, with similar laboratory results and with the same accuracy of observation, we can hope for similar clinical results in the treatment of some varieties of puerperal septicemia. As I indicated in my paper, we must lose no time if serum is to be given. If it acts simply as a chemical antidote we must not lose sight of that fact—a fact so well demonstrated by the antitoxin treatment of diphtheria.

To recapitulate: A successful employment of serum requires that we bear in mind the facts that the case must be critically studied by a bacteriologist; that we must not inject serum at all stages nor in all cases of puerperal sepsis. Doubt also attends the choice of serum. My case is offered simply as a contribution to this important subject. I believe that the kind of infection was shown from a clinical rather than from a bacteriological standpoint, and that the evidence of the former was, in this case, not less valuable. Ten years ago, if a patient had puerperal septicemia and in the course of a few days had facial erysipelas, we thought the infection due to the same poison. It is reasonable to reach that conclusion. I hope, as opportunities are afforded, to study the subject more and more thoroughly. Ultimately I believe we will find that the antistreptococcic serum has a limited field of usefulness in obstetrics when associated with bacteriological examinations.

DR. EDWARD P. DAVIS.—Dr. Abbott's remarks emphasize the technical difficulties in the scientific application of serum

therapy. It is interesting to remember that when the antitoxin of diphtheria was first introduced into this country, it was employed in several cases of puerperal sepsis with at least one striking result. Its effect seemed to be that of a powerful alkaloidal tonic.

While we cannot make our diagnoses by culture methods in many cases, it is fair to infer that a case of puerperal sepsis which has been in dirty hands has been infected with streptococci. We need not hesitate, then, for lack of diagnosis, in using serum in these cases. In the last two cases both patients were fatally infected when brought to the hospital, and it seems scarcely probable that serum therapy would be more successful than other methods of treatment.

DR. J. M. BALDY.—Several points have occurred to me, not only during the discussion this evening, but before. The practical side of the question, after all, is the one that appeals to us. What can we do practically? It is self-evident to us, if we cannot employ the serum until we have an absolutely sure bacteriological examination and diagnosis, our patient would by that time probably be dead. It would be absurd to try to adopt this plan from the practical standpoint. We have very little to go on from accuracy in diagnosis, as far as the treatment is concerned. If it is necessary to apply the serum early in the disease, attempt at bacteriological examination must be thrown to the winds, excepting in hospitals with special preparations for this work.

Then we meet with the difficulty that mixed affections are not appropriate to treat. As a matter of fact, we know the large proportion of these cases are mixed infections.

We are brought face to face with conditions practically impossible to surmount. If a large proportion are unmixed infections, treatment with antistreptococcic serum is not applicable; and we cannot decide accurately that the case is one of streptococcus infection until we obtain a bacteriological examination; and we cannot obtain a bacteriologic investigation until considerable time elapses, and I believe it is the consensus of opinion that the serum is of no use unless employed early in the disease. What can we expect, as far as accurate observations are concerned? What reliability can we place on any observations made following the use of the serum thus far? Every case reported to-night is useless for strictly scientific deductions.

Dr. Davis has spoken of antidiphtheritic serum proving valuable in some cases, and Dr. Hirst has reported the use of various other measures which have been enthusiastically lauded by their advocates. I presume if you injected salt and water you would get four-fifths recoveries. Why? Because that proportion will get well at any rate with the usual treatment. It is self-evident to those who have studied the literature from the hands of enthusiastic advocates of the serum that Dr. Hirst is near the truth when he expresses himself. "if he had such a mortality he would have very grave doubts concerning the advisability of continuing the treatment longer." There is no

question whatever that there have been sudden deaths occurring following the use of the serum, sufficient to bring up the question of the dangers of the treatment. And this danger is accentuated when we reflect that four-fifths or more of these women get well without any treatment other than is usually used.

My own impressions from all I have seen, heard, and read on the subject are decidedly unfavorable. I await further investigation, however, before fully dropping the matter from my mind.

DR. DORLAND.—While not having had any practical experience in the employment of this new method of treatment of puerperal sepsis, I have been very much interested for some time past in a statistical study of the reported cases. Although this is not completed, I have proceeded far enough to have reached some pretty safe conclusions, pre-eminent among which is the fact that the serum treatment has not met with a very flattering degree of success. The unfavorable results that have been obtained in so large a proportion of cases, it seems to me, may, reasoning from a theoretic basis, be attributed to the following three obstacles that must be overcome: In the first place, *the difficulty in ascertaining in any given case the precise variety of septic infection that may be present.* It stands to reason that in the commonest form of puerperal sepsis and the most amenable to treatment—namely, simple sapremia—the serum treatment is not only not indicated, but is absolutely contraindicated. In such cases its administration can only be followed by unsatisfactory or even dangerous results. On the other hand, in those forms of sepsis in which there has occurred a true microbic infection, the micro-organism, however, not being the streptococcus, but some other pathogenic germ, as the bacterium coli, unlimited amounts of the serum of Marmorek may be introduced into the system of the patient without any beneficial results whatever. Only in those cases in which the streptococcus is present will the use of this serum be indicated, and especially valuable should it be in the cases of pure streptococcic infection. In cases of mixed infection it is reasonable to believe a favorable result should obtain only upon the administration of a mixed serum.

In the second place, the *intensity* of the infection in any given case must be taken into consideration and the treatment by means of the serum regulated thereby. The morbid effects of the infection must increase *pari passu* with the degree of virulence, and upon this factor will depend the amount of blood alteration that will be present. As in scarlatina the infection may be, and generally is, so slight as to produce but little change in the constitution of the blood, while again it is so intense as to cause rapid disintegration of the corpuscles, with death within twenty-four hours, so in puerperal sepsis there may be a similar grade of infection from slight to grave, and the amount of serum injected and the time at which the treatment is begun will exert a marked influence upon the

results obtained. The general rule is that the earlier the treatment be instituted the better will be the results obtained, and to this rule there is no exception. In these graver cases not only should full doses (ten cubic centimetres) of the serum be injected at the very onset of the symptoms, but half this dose should be repeated at short intervals (three to five hours) until the desired effect be produced, or an aggravation of the symptoms indicates the uselessness of such a course of therapeutics.

Thirdly, another cause of failure must be attributed to the *inability of the blood to regain its proper constitution after grave disorganization has been brought about through the presence in it of the toxins of the germs and of the germ itself*. It stands to reason, therefore, that in all the cases in which the serum treatment is employed it should be, from the very first, supplemented by the use of some such remedy as nuclein, which will restore to the blood its nucleinic acid and thus its defensive properties whereby it may successfully resist the further action of the poisonous elements. It is not at all improbable that a certain percentage of the failures reported has been directly due to an inability on the part of the blood to rally from the pernicious effect of the poisons. Under such circumstances heroic doses of the serum even will fail to cure the patient, although they may succeed in neutralizing a large proportion of the toxins circulating in the system of the patient. Add the nuclein and the patient will begin to recover at once.

Finally, one word as to the *dangers* of the serum treatment. Aside from the minor unpleasant sequelæ of its use, namely, the development of cutaneous rashes, a certain amount of drowsiness, or some disturbance of the gastro-intestinal tract, there are graver sequelæ occasionally noted, prominent among which are a tendency to collapse, which in a number of cases reported has rapidly terminated in death, and the development of an acute nephritis as manifested by bloody urine and uremic symptoms. These untoward effects of the serum injections should be constantly borne in mind, and should there have pre-existed a tendency to renal disease the thought of serum therapy should be banished.

DR. JOHN B. SHOBER.—It is difficult to draw any conclusions based upon the study of the cases reported here to-night. Dr. Hirst's three cases must be discarded on account of the late use of the serum in all, and because of the uncertainty of the character of the infection from a bacteriological standpoint, and because his third case, in which an abscess developed in the cervix after a Cesarean section, cannot be considered a case of puerperal fever. Both of Dr. Davis' fatal cases should be excluded because the treatment was begun too late, and in one of them there was little evidence of streptococcic infection, the only symptoms recorded being jaundice and profound nervous disturbance. In Dr. Baldy's fatal case the treatment was also begun very late (the eleventh day), after the patient had been seriously ill for several days, with high temperature and rapid

Reported by	Source of serum.	Day of commencement.	Amount.	Result.	Lesion or seat of infection.	Remarks.
B. C. Hirst...	1 Marmorek.	Late, ..	Ninety cubic centimetres.	Recovered.	Not stated.....	Septic phlebitis; no effect noticed; thirty cubic centimetres on three successive days; upon administration of nuclei symptoms improved.
" ..	"	" ..	Ninety cubic centimetres	Died ..	" ..	Thrombo-phlebitis; no effect noticed; thirty cubic centimetres on three successive days.
" ..	"	" ..	Ten cubic centimetres.	Recovered.	Abscess of cervix after Cesarean section.	Five cubic centimetres on two succeeding days; effect unfavorable on temperature and pulse.
R. C. Norris.	"	Seventh....	Sixty-five cubic centimetres.	"	Lacerated cervix and perineum repaired; active local treatment.	Pseudo-diphtheritic membrane covering cervix and vagina; initial dose of serum, ten cubic centimetres; pulse 98; and 105-4.5; pulse 141; next day temperature 98; pulse 98; and the pseudo-diphtheritic exudate and induration absent; patient continued to do well under serum treatment until sixth day, when facial erysipelas developed, which disappeared by lysis under more active serum treatment.
E. P. Davis...	"	Fourth...	Ten cubic centimetres.	"	Incomplete abortion ...	Five cubic centimetres on two succeeding days; marked improvement as to temperature, pulse, and the general condition followed each injection.
" ..	"	Late, ..	Sixty cubic centimetres,	Died	Forceps delivery; laceration of genital tract.	Thrombosis of right leg; ten cubic centimetres twice daily for several days; no effect from serum noticed.
" ..	"	" ..	Thirty cubic centimetres,	"	Not stated.	Jaundice, mania; uterus large; pelvis otherwise normal.
J. M. Bally...	"	Eleventh...	about. Twenty cubic centimetres.	"	Infiltration in both broad ligaments; patient had been coeured and clonched.	Twenty cubic centimetres in four hours; an abrupt rise in temperature followed, 101° to 106.2.5°; death in a few hours.
George E. Shoemaker.	"	Seventeenth.	Fifteen cubic centimetres.	"	Self-induced abortion; abrasion behind fourchette; false membrane covering vagina.	Patient profoundly ill when admitted on tenth day; jaundice, hyperesthesia, vomiting, nephritis; vagina congested and hemorrhagic with false membrane; offensive uterine discharge; no bleeding; ten cubic centimetres given on fourth day and five cubic centimetres on sixteenth; a general papular eruption, becoming pustular, developed after first injection; temperature rose slightly after each injection, but soon became subnormal again. This case characterized by subnormal temperature.

pulse. No improvement followed curettage and douching by the attending physician; in fact the patient's condition grew worse and the temperature slowly but steadily rose. When Dr. Baldy saw her he found infiltration of both broad ligaments and diagnosed puerperal phlebitis or lymphangitis, or both. Under supporting treatment she became worse, with further rise of temperature and pulse rate, and delirium developed. Under the circumstances the serum treatment was instituted. Two small doses, ten cubic centimetres each, were given in four hours. The patient died four hours after the second injection with a temperature over $106\frac{2}{3}^{\circ}$. It is my belief that at the time the injections were started in this case nothing could have saved her, unless perhaps the employment of heroic doses of a reliable serum, say thirty cubic centimetres every four hours. It must be remembered that one favorable result was noted after the injections—namely, her delirium left her and her mind was clear at the end. We should therefore exclude this case, on account of the very unfavorable circumstances under which the treatment was employed. For very much the same reasons Dr. Shoemaker's case should not be reckoned in estimating the value of antistreptococcic serum in cases of puerperal fever. The symptoms were anomalous—a subnormal temperature, jaundice, hyperesthesia, frequent vomiting, nasal infection as shown by foul discharges, and there were grave kidney complications. Surely in the presence of such symptoms good results must not be looked for from a drug which is designed to meet that condition of the system which results from an unmixed infection. In this case also the injections were begun on the seventeenth day, which was extremely late.

Out of the nine cases reported, therefore, we have only two in which the injections were begun reasonably early and in which the clinical signs point to a pure streptococcic infection. I refer to Dr. Norris' case and the first case reported by Dr. Davis. Dr. Norris' case is particularly instructive on account of the development of erysipelas, which may be considered, I think, a complication of the case rather than a sequel of the injections. The decline of temperature by crisis from the puerperal fever and by lysis from the attack of erysipelas is extremely interesting; also the local effect upon the false membrane in the genital tract was quite striking, resembling the action of the antitoxin serum in diphtheria, and would seem to indicate that the infection was a pure streptococcic one. In this case the injections were continued in small doses over quite a long period of time, and sixty-five cubic centimetres were used in all, which is surely a good test.

Dr. Davis' case received only ten cubic centimetres in all, and while the immediate improvement as to temperature and pulse and the general condition of the patient was most marked, one cannot help feeling that she might have recovered as quickly without the use of the serum. However, it is fair to attribute the immediate effect upon her symptoms to the action

of the drug and to consider that it materially aided and perhaps hastened her recovery.

I therefore find nothing discouraging in the series of cases reported to-night. As M. Charpentier has pointed out, we cannot rely upon the serum after the puerperal infection has made much progress. It all goes to show, as stated by me in my report made to-night on cases collected from the *British Medical Journal* and the *Lancet* for 1896, that results can be expected only from a reliable serum, begun early in cases of pure, unmixed streptococcic infection, and that under such circumstances we have in antistreptococcic serum a most valuable and reliable remedy.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of March 3d, 1897.

The President, C. J. CULLINGWORTH, M.D., in the Chair.

DR. CULLINGWORTH gave his inaugural address, on

THE UNDIMINISHED MORTALITY FROM PUERPERAL FEVER IN
ENGLAND AND WALES,

which has already been published in full in the medical journals.

DR. W. S. PLAYFAIR moved a cordial vote of thanks to the President for his most interesting and instructive address, and said he could conceive no topic more useful nor one more likely to have a beneficial effect. This was seconded by DR. CHAMPNEYS and carried unanimously.

DR. ARTHUR E. GILES read a paper on

THE CYCLICAL OR WAVE THEORY OF MENSTRUATION, WITH
OBSERVATIONS ON THE VARIATIONS IN PULSE AND
TEMPERATURE IN RELATION TO MENSTRUATION.

This paper is based on observations on the temperature and the pulse before, during, and after menstruation.

The temperature observations embrace fifty menstrual periods in forty-five patients; from the fifty cases a composite curve has been drawn up, which may be regarded as the type of the temperature curve in relation to menstruation. It shows that the temperature is lowest at the middle of the intermenstrual period; it gradually rises, attaining its maximum two days before menstruation. There is a sudden drop on the day preceding the flow, with a second slighter drop at the end of the period. It rises slightly for the first week after the cessation of menstruation, and there is a third fall at the beginning of the intermenstrual period.

The observations of Jacobi and Reinl have similarly been employed in the construction of composite curves; these present features similar to those shown by the author's curve.

The pulse.—Sphygmographic tracings have been obtained from seven patients, covering nine menstrual periods and forty observations. They show that the blood pressure is greatest on the first two days of menstruation and on the day preceding; it is lower during the remainder of the period, rising again slightly after its cessation.

The total variation, both in temperature and pulse, is comparatively limited.

The author then discusses the bearing of these facts on the cyclical theory of menstruation, and concludes that this theory as ordinarily stated is insufficient as an explanation of the origin of menstruation. But, taken in a modified form, the cyclical or periodic theory may be accepted as giving a connected idea of the meaning of menstruation, which may be regarded as the conclusion of the reproductive phase of an alternation of nutritive and reproductive activity, or, in other words, as a repeated preparation for the reception and nutrition of a fertilized ovum. In the absence of such an ovum menstruation occurs as a "missed pregnancy."

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of November 18th, 1896.

DR. STEWART read a paper upon

OCCIPITO-DENTRO-POSTERIOR POSITIONS.¹

DR. PALMER.—What effect will this procedure have upon the child's chance for life?

DR. STEWART.—I have not had any deaths in the hundred cases I mentioned. You are just as apt to lacerate with an ordinary pair of forceps as with these. The great advantage I claim is in making the traction at the same time that the forceps are used.

DR. REAMY.—As I understand, you do not use these as axis-traction forceps.

DR. STEWART.—Pulling in the axis of the pelvis is not so much the advantage of the axis-traction forceps as the tendency to increase the flexion of the head.

DR. REAMY.—What I wish to understand is, in what axis does the head turn? The sinciput, of course, is expected to ascend on the anterior inclined plane on the other side, but how

¹ See original article, p. 541 in this JOURNAL for April.

far back could you get on the occiput for your traction, so as to find on what axis the rotation of the sinciput would occur?

DR. STEWART.—Where you have very great extension, by getting the instrument further over the occiput it is clear to me that by pulling directly downward you can sweep the occiput over that arc.

DR. REAMY.—If the sinciput does not ascend, the occiput cannot descend.

DR. STEWART.—If you cannot bring it down I do not believe you can do anything. I do not believe that this will cure every case and that we will not have any more difficulty. It is simply a question whether you will apply the ordinary forceps or the axis-traction forceps. I think by using the axis-traction forceps you tend to bring the occiput down upon the floor of the pelvis, and then it will rotate, as it would under ordinary circumstances, and the instrument will rotate with it. But I take the instrument off before it rotates. Reynolds has recommended putting the instrument on backward, but in doing that you are almost certain to tear the soft parts.

DR. REAMY.—It depends on what instrument you employ and how you use it. The most extensive paper on the subject was written by Etheridge, of Chicago, and read about fifteen years ago.

I would call attention to two or three facts. First, in not over two and one-half per cent of all these cases will anterior rotation fail to occur spontaneously, especially if aided by external manipulation. When you consider that all but two and one-half per cent of these cases will rotate by the normal powers, you must stand in indescribable admiration of the resources of Nature for accomplishing a favorable end in that which otherwise would be hazardous to both the child and mother. It becomes a question—the woman being rendered comparatively free from pain by an anesthetic used within the line of perfect safety—whether it is a better plan to allow Nature to have her way and accomplish the rotation, or whether you are to ignore the measures by which Nature accomplishes these results and employ active interference. Every one knows that the descent of the occiput and the ascent of the sinciput involve mechanical principles by which Nature accomplishes rotation. The head cannot descend in these cases unless rotation occurs, yet it is the descent which carries forward the rotation. And rotation does not occur until the presenting part has reached the pelvic floor. So, while the doctor's statement is true, that pure antisepsis and asepsis can be practised and the skilful practitioner can carry his arm and hand into the uterus, and while it is true that the rectification of these positions can be facilitated by the proper use of the forceps, it still becomes a question whether this is the safer plan and whether it is justifiable in all cases. I have no doubt of Dr. Stewart's ability to deal with these cases just as described. His experience proves it. Still that does not remove the objection. Some of these cases change position spontaneously

before the head enters the brim. Certainly, changing the woman's position, using external manipulation as has been indicated, is proper and one of the advanced methods of modern obstetrics. In all cases, pain continuing and neither advance nor rotation progressing, the head having engaged, impaction may be assumed. But fortunately, before impaction has occurred, but just at its verge, the hand can be introduced under an anesthetic and the changes described by the essayist procured, or the forceps may be used, as the physician's skill may indicate. In this I include the use of the forceps for correcting position. I have in three or four cases taken a forceps with a very moderate curve, of comparatively small size (not an axis-traction forceps), and have reversed the blades and applied them so as to make traction upon the occiput, at the same time elevating with the fingers or the unemployed hand the sinciput, and have thus secured most admirable results. I would not attempt this where the head was impacted. This procedure requires facility in the use of instruments and a good conception of the construction of the pelvis, and of the relations of the head to it at each step of descent and rotation. This method of forceps application is condemned. But with a properly constructed instrument, carefully adjusted, firmly grasped in but one hand, and with only gentle traction, the process is perfectly safe for both mother and child. An important element of safety for the child is the absence of pressure by the instrument over the superficial and deeper vessels and nerves at the base.

DR. TAYLOR.—The essayist certainly does not represent the use of the instrument as it is intended the axis-traction forceps should be used; and I cannot see any particular advantage in applying the axis-traction forceps in the way he describes, because I think he makes statements that are not mechanically true. I do not believe that we can make the movements that he says he intends to make. In seizing the front handles of the instrument and manipulating with them he violates the first and important rule in regard to the use of axis-traction forceps. I agree with Dr. Reamy that almost all of these cases of occipito-posterior positions will ultimately rotate without artificial aid. Once in a while, of course, they do not. And then I agree with him as to his purpose—that of endeavoring to bring down the occiput, increasing the flexion; but, as I said, I do not think he does it in the way which he claims. It is my opinion a single blade of the forceps put behind the occiput and used as the old-fashioned vectis would be the best means of correcting these cases. Barnes, who ten or fifteen years ago was recognized as the best writer upon operative obstetrics in England, says simply to make traction and let Nature make the turns. I believe that is the best practice. Simply place the forceps far back on the head and make traction, and then rotation will take place.

DR. STANTON.—Would there be any advantage over other forceps in that?

DR. TAYLOR.—I do not think there would. You all will remember that when the axis-traction forceps was first introduced it was said it was not an instrument to be used low down in the pelvis, but only high up. I do not think experience has shown that to be true; I think we can use it low down, and that is where it would generally be used in cases of this kind. Using the traction as intended with the instrument would be a good thing, but that is not the way the essayist suggests to use it.

DR. GILES MITCHELL.—I desire to commend the essayist; I agree with him in the main. My experience with occipito-posterior positions has been that the cases in which rotation forward does not occur are delivered with about the same facility as though the head were in either the first or second position. In most of these cases we have a very ample pelvis or very small head, or both, and that is the reason rotation does not occur. The largest child that I ever saw delivered alive was a case at which I presided some thirteen or fourteen years ago; the child weighed thirteen and a half pounds. It was delivered in this position, without laceration of the perineum, and was delivered by Nature unassisted.

DR. PALMER.—Did anterior or posterior rotation take place?

DR. MITCHELL.—The head did not rotate forward. I am satisfied these cases are much more frequent than they are recognized; that anterior rotation takes place in almost all of them; and that in those in which rotation does not take place delivery is accomplished usually without much difficulty. It is for this reason that interference should be avoided until the head becomes impacted. My preference in the use of instruments would be for an almost straight forceps. I fail to appreciate the advantage, suggested by one of the speakers, in introducing the blades upside-down.

DR. PROBST.—I presume you are acquainted with the article in a recent number of the *British Medical Journal* upon disinfection of the hands. The experimenter used various methods: first, carbolic-acid solution, after scrubbing with soap and water; then alcohol and solutions of bichloride of mercury of various strengths, and, after scrubbing for an hour, failed to get the hands sterilized. I do not want to say how much danger there would be of getting pathogenic germs from the vagina into the uterus, but I think it is not so easy to get the hands aseptic as the author seems to consider.

DR. B. P. GOODE.—Dr. Mendenhall, my teacher of obstetrics, used to tell us these cases nearly always rotated anteriorly. I have had some difficult cases. In a case with which I was connected recently, a very good practitioner made a mistake in diagnosis; he thought he had a first position of the head when it was a fourth. He had applied the forceps with a view to delivering a child in the first position. With all his efforts the head finally rotated anteriorly. Dr. Taylor recommended the use of the vectis, with the use of the finger upon the forehead pushing it up. His idea was that after a pain we

should maintain the position of the head with this instrument. Some women recognize the movement of the head, and it is very discouraging to have it retreat almost as much as it was forced forward by the pain. I have attained a very considerable amount of success in the use of the vectis, and am still using it. My idea is to maintain what is gained.

DR. STANTON.—I agree that these cases nearly always rotate, but the question is what we are to do when they do not. I do not believe, with Dr. Mitchell, that these cases are not of so much importance, though I consider them very serious when rotation does not take place. I have never had much success in remedying the position by the use of forceps. I have succeeded in some cases, when taken early, by performing internal rotation. I believe this is a procedure to which sufficient attention has not been paid. In many cases it can be done with the woman profoundly anesthetized. Where this cannot be accomplished, I believe that with the hand unaided by instruments, or the vectis and hand, much more can be gained than by the application of forceps.

DR. PALMER.—Four or five years ago I presented a paper on this subject to the American Gynecological Society, and I discussed the subject recently when a paper was presented to the Academy of Medicine by my friend Dr. Zinke. I have now much the same ideas as then, and I can but repeat what I then said, and lay a great deal of stress upon what I think is the mechanism of labor in these cases. The paper of Dr. Stewart is excellent; but I fail to comprehend how he is going to facilitate labor in these cases, although his principle of helping flexion is correct. The main point I wish to speak of to-night has reference to the mechanism of labor. I believe Hodge's "Obstetrics" is to-day the best book on that subject in the English language. I think Hodge is correct when he says that the anterior inclined plane of either side, right or left, is all inside of the pelvis, from the symphysis pubis running back to a line nearly to the sacro-iliac synchondrosis. Hodge says the line dividing the anterior and posterior planes is three-fourths of an inch in front of the sacro-iliac synchondrosis. When a round body like a fetal head is propelled against the anterior inclined planes by the action of the uterus and the accessory powers, this round body will naturally move downward, inward, forward, and outward; but when this round body strikes posterior to that dividing line its movement will be downward, inward, and backward. That is the rule, to which there are exceptions, only owing to the construction of the pelvis, together with some shapes of the head. The exceptions are rare. A great many of what appear to be occipito-posterior positions are really not so, but occipito-anterior positions. An occipito-posterior position is one in which the occiput impinges upon the posterior inclined plane; so it is not necessarily one in which the occiput points posteriorly, but one in which the occiput is posterior to the sacro-iliac synchondrosis. In an occipito-posterior position the occiput may look posteriorly, but

anteriorly it is to the sacro-iliac synchondrosis. This is the reason so many cases supposed to be posterior are seeming and not real. Of course, when this condition is recognized, the proper thing to do is to change it, if practicable, before the head descends into the pelvic cavity. It is prudent often, in order to save the life of the child and the soft structures of the mother, to perform podalic version, which is not dangerous or difficult. You can oftentimes, however, before the head enters the pelvic cavity, change the position and rotate the occiput and whole fetus, so that it becomes anterior to the sacro iliac synchondrosis. If the head is inside of the pelvic cavity the thing to do is to use the vectis. Putting that instrument posterior and to the mother's left, and with the fingers anterior and to the mother's right, press upon the left temple of the child (the position of the child being right occipito posterior, by far most common), thereby facilitating anterior rotation. In that way you also aid flexion. If the head has come down to the pelvic floor put the forceps in, in relation to the pelvis; and if, as you make traction, you find the head is rotating, remove the forceps and reapply them. Do not let the forceps unchanged rotate more than one-fourth of a circle; better, not more than one-eighth. I believe properly constructed forceps will permit the head to rotate within the blades.

DR. REAMY.—It would not do that with any forceps except Hodge's.

DR. PALMER.—I believe with any forceps having long, narrow blades, after the Baudelocque or Naegele pattern, if properly constructed, with a double cephalic curve, as has Hodge's, and if the handles are not too severely squeezed together when traction is made, normal rotation of the fetal head can take place between their blades.

DR. JOHNSTONE.—I wish to back up Dr. Mitchell's statement. The first case of occipito-posterior position I ever saw was born in that position. I think the reason was that it was a small child. Goodell showed me a method by which I have saved about a dozen cases. It is very similar to what the essayist has described to us to-night, but there is no traction connected with it. The method is to introduce the hand and not stop until you get hold of the back of the neck. I apply the forceps in the correct line, as far as the mother is concerned, and without traction swing it first one way and then the other, to see which way it will go the more easily, then take it off, apply it correctly, and deliver. Whose method it is I do not know, but it works very satisfactorily.

DR. REAMY.—The advantage of applying the forceps reversed is that you are not so likely to kill the child by compression of the base of the brain and the large vessels of the neck, as in the ordinary way of applying it.

DR. PORTER.—Can the forceps be applied in that position unless the head is very low down?

DR. REAMY.—With a slight curve you can, by carrying the

handles of the forceps well back, apply it with the head anywhere within the pelvic excavation, in a normal pelvis.

DR. STEWART.—I am very sorry some things I have said seem to have been misunderstood. First, I think we can shorten labor by early manipulation. We should not wait until impaction occurs. We should watch these things so as to be sure flexion is maintained, so that labor will be as easy as possible.

DR. REAMY.—I should like to inquire whether there is not considerable danger, even if the manipulation is done early, of producing extension unless you keep the hand up there?

DR. STEWART.—The paper stated very clearly, I think, that before the head entered the brim the only procedure justifiable was abdominal manipulation. I said distinctly that I would not interfere in any way until I was satisfied extension had begun. I gave the methods by which I would be guided in telling when flexion had begun. I tried then to show that manual manipulation, carried on essentially by inserting the hand and pushing the sinciput upward and backward, was all that was justifiable, and only afterward should instruments be used. The great principle that underlies rotation is not only the inclined plane, as Dr. Palmer has said that Hodge tells us, but it is also the pelvic floor. As long as flexion is maintained we may expect anterior rotation to take place. Given a woman with a perineum torn, in which there is not this resistance to the advancing head and rotation will not take place under ordinary circumstances, and if the head be so large it will not pass down in the flexed condition, or if extension take place it cannot move down in an extended position, then impaction is apt to occur and we are justified in using instruments. Penrose believes that the vectis is not employed to make traction upon the occiput, but that it supplies a false pelvic floor upon which the head can rotate. I think in that way it is very valuable. If flexion can be increased and the dorsum of the child be brought forward, is it not rational to suppose that the head will descend into the pelvis and rotate, even on a relaxed pelvic floor, without any instrument? It is of the "two and one-half per cent of cases" that I am speaking. I have been greatly misunderstood in regard to the use of instruments. I do not claim to make rotation with them. Who first recommended the rotation of the head in the pelvis with the instrument I do not know, but that procedure is condemned on almost all sides. It is not justifiable unless every other means fails. What I did say was that, when the instrument is applied, by carrying the handles forward you tend to depress the occiput and favor flexion. We increase that flexion by making what is practically axis traction, by pulling upon the lever. The object is not only to increase flexion, but to bring the head down upon the pelvic floor, when it will rotate in the majority of cases. The instrument should be taken off before the rotation is complete. The objection I have to the application of forceps in the reversed position (and it is a theoretical

objection, for I have never used them so) is that it may tear the soft parts of the mother.

DR. REAMY.—Do not pull so hard.

DR. STEWART.—The cases that do not rotate spontaneously are the most difficult. Dr. Palmer will remember helping me with my first occipito posterior position. In that case the head was already impacted. If any man wants to go through with the delivery of a large head in a comparatively small pelvis, with the occiput crowded down into the sacral cavity, I do not want to be with him. You cannot turn the head there. Those are the cases in which the dorsum of the child lies over the spine of the woman from the beginning, and you cannot rotate them.

DR. TATE.—Then what would you do?

DR. STEWART.—Apply the forceps to the sides of the pelvis and pull. Then by elevating the forceps you may make the whole occiput sweep over the space of some eleven inches, but usually it does not do so.

DR. REAMY.—Don't you sometimes get the chin out from under the symphysis pubis?

DR. STEWART.—In one case I did that. It is easy when the pelvis is ample.

THE PRESIDENT, DR. RUFUS B. HALL, reported a case of

DOUBLE UTERUS WITH CONGENITAL CLOSURE OF ONE CERVIX;
UTERUS DISTENDED WITH MENSTRUAL FLUID.

The subject of the report, Miss H., is a strong, vigorous girl aged 13, well developed for her years. She was seen in consultation with her physician, Dr. C. C. Agin, of this city, October 25th, 1896. The following history was elicited: About two months prior to this visit Dr. Agin saw her and prescribed for rectal tenesmus. He did not make any physical examination at that time. She did not get entire relief, and the neighbors advised the family to consult a physician in the city who advertises. This they did, he having her in charge until a few days before my visit. Her condition then became so alarming they again asked Dr. Agin to see her. She had been confined to bed for about three weeks with pain in her abdomen. This had gradually grown worse. She first menstruated seven months ago, without much pain; the flow lasted three or four days and recurred regularly every four weeks after that time, the last period being from October 15th to October 20th. The flow was always free. She said she had never felt perfectly well in her abdomen since the second time she menstruated, and for three or four months had felt uncomfortable, with a full feeling in her pelvis. For three weeks past she had had rectal tenesmus, and it was well marked at the time of my visit. About two months before, while learning to ride a bicycle, she sat down heavily on the saddle and, as she says, hurt herself. She located the seat of the injury over the right tuberosity of the ischium. She grew worse rapidly from this on,

and believed it to be the whole cause of her illness. The patient being a very unruly child, anything like a satisfactory physical examination of the abdomen or pelvis by rectal examination could not be made. As the hymen was intact I made no attempt at vaginal examination. On attempting to pass the finger into the bowel I could make out, in spite of her cries and struggles, a tumor of some kind filling the entire pelvis and extending above the pubic arch, even pushing the perineum forward.

The child was in great agony, with rapid pulse and great tenderness over the abdomen. There could be no doubt about the presence of active peritonitis, and it was evident to all that she must have immediate relief. It was agreed to send her at once to the Presbyterian Hospital. She entered there at noon, October 25th, and was prepared for operation. At 11 o'clock on the morning of the 26th she was given an anesthetic. Assisting, Drs. Colter and Rousch. Present, Drs. Agin and Hamma of this city, and Drs. Finley and McClellan of Xenia, O. Rectal examination revealed the tumor filling the entire pelvis and extending into the abdomen more to the patient's right. It could not be pushed up, and the finger introduced into the bowel passed behind the tumor and somewhat to the patient's left. Nothing definite could be determined by this examination. I passed my finger into the vagina. It was very narrow and fitted closely around the index finger, but the cervix was beyond reach. The vaginal canal was pushed far to the left side of the pelvis. I could pass a probe two and a half inches beyond the end of the finger, demonstrating that the vagina was elongated. Above this and to the patient's left side, apparently firmly attached to the tumor, could be made out a small, hard lump. This was believed to be the uterus. By a little manipulation the sound was carried into this lump, confirming our belief. What the tumor was, was very uncertain. No manipulation could move it from the pelvis, neither could any manipulation bring the uterus nearer to the examining finger. I was wholly at sea as to the true condition, and at once determined to make an exploratory incision and be governed by what that revealed.

The abdomen was opened in the median line, three and a half inch incision. The omentum was adherent over the top of the tumor to the patient's right, and a portion two and a half by three and a half inches was discolored, almost black. It was ligated and removed. The tumor occupied the entire pelvis, extending two and a half or three inches into the abdomen. The small lump previously described to the left of the tumor proved to be a normal-sized uterus. The ovary and tube on that side were perfectly normal. The tumor appeared to spring from the right side of the uterus, and had all the appearance of a pregnant uterus of about four months' gestation that had become blocked in the pelvis. By palpation there seemed to be a semi-fluctuation like that of a pregnant uterus. Passing the hand well to the right side, I found the other ovary and

tube perfectly normal. The Fallopian tube was about two inches long, acutely inflamed, and but slightly enlarged. It entered the tumor, which proved to be the uterus, at a point corresponding to its right cornu, five and a half or six inches from the point where the left Fallopian tube entered the left side of the opposite uterus. The broad ligament was drawn taut on both sides, but not thickened. For the first time the true condition dawned upon me. I had to deal with a double uterus, with the right side distended with menstrual fluid, with the cervix pushed up out of the pelvis, so that the distended uterus really lay crosswise of the pelvic cavity. I immediately packed the abdomen with sponges, temporarily closing it, and put the patient in the lithotomy position. I made renewed efforts to reach the cervix, but could not do any better than before. With a steel male sound, short curved, which I passed into the vagina, I attempted to make an opening into the distended uterus. By using considerable force I succeeded in doing so. At once a gush of dark, thick menstrual fluid escaped. By pulling down with the hooked end of the sound I dilated the opening, and a pint or more of the fluid was discharged. I could then reach the cervix with my finger. I removed the sound and passed my finger through the opening, which proved to be the right cervix. This was dilated and the cavity carefully washed out. Altogether about two and a half pints of fluid discharged. When the uterus was thoroughly emptied the cervix could be brought down to the perineum. Two uteri, one recently emptied, the other of normal size, were easily demonstrated by passing a sound into the left uterus and the finger into the right through separate cervixes. A strip of gauze was carried into the uterus just emptied, and the vagina lightly packed with gauze for twelve hours. It was then removed, and irrigation of the vaginal canal carried out every eight hours for the first week. After placing the gauze dressing in the vagina the hands were carefully cleansed preparatory to closing the abdominal incision. The sponges which were left to temporarily close the incision were removed. The tumor in the pelvis had practically disappeared. Inspection now revealed a perfect double uterus united laterally to within half an inch of the fundus. The left was of normal size, the right appearing nearly twice as large as its fellow. There were but two ovaries and tubes, one at the left of the left uterus, the other at the right of the right uterus, as previously described. The abdominal incision was closed without drainage. The patient made an uninterrupted recovery. This case is interesting, not only from the rare condition of a double uterus with a single vagina, but the many obstacles to a correct diagnosis. The history of injury from mounting a bicycle led me to suspect either a hematocele or ischio rectal abscess. It required only a moment after she was under the influence of the anesthetic to demonstrate the absence of either. My explanation as to why she always suffered after the injury from mounting the bicycle is this: she had a pelvic tumor gradually coming on from her

first menstrual period, seven months before. This is plainly indicated by her clinical history. The tumor probably filled the pelvis fairly well, and in mounting the bicycle she received a trauma which may have been the cause of the lateral displacement of the uterus. This was the direct cause of her peritonitis. The case illustrates in a forcible manner the advantages of exploration in these doubtful cases.

DR. RUFUS B. HALL reported

VAGINAL FIXATION OF THE ROUND LIGAMENT FOR
BACKWARD DISPLACEMENTS OF THE UTERUS.

Mrs. H., referred by Dr. W. W. Hall, of Springfield, Ohio. A strong, vigorous-looking woman, aged 28, married five years, no children, no miscarriages. She gave a history of having suffered very severely from vaginismus from soon after her marriage. She menstruated regularly, the flow lasting from two to three days; always suffered some pain the first day. This had grown worse for the last two or three years. She complained of constant bearing-down pain when on her feet, with backache and pain in the top of the head. She suffered some inconvenience from pelvic pain before her marriage, but it had grown steadily worse since that date. For two and a half years she had been incapacitated from doing any work that required her to be on her feet. She had an irritable bladder, requiring her to empty it every three or four hours during the day, and usually once or twice during the night. Examination revealed a very thick, well-developed hymen, which originally blocked three-fourths of the entrance to the vagina. This had a slit extending somewhat to the patient's right, leaving two large tags that were exceedingly sensitive to the touch, so much so that the patient could hardly endure vaginal examination. She cried out lustily from pain when I attempted to make a vaginal examination. I believe the vaginismus was due to this irritable condition of the hymen.

Further examination revealed the uterus retroflexed, the fundus in Douglas' cul-de-sac, with an ovary at either side of the fundus. The cervix was narrow, elongated, and rested against the pubic arch. I advised removal of the hymen and fixation of the uterus, after the manner recommended by Dr. Hiram N. Vineberg, of New York, in an article presented to the Canadian Medical Society at Montreal in August last. The patient entered the Presbyterian Hospital, where the operation was performed October 14th, 1896. Drs. Colter and Rousch assisted, and Dr. Edwin Ricketts was present by invitation. The patient being anesthetized, the vagina was dilated by force, after the manner of dilatation of the rectal sphincter. I then proceeded to the operation upon the uterus. I had never seen the operation done, so tried to follow the description given by Dr. Vineberg in his article as published in the *Medico-Surgical Bulletin* of October 3d. He advises "longitudinal incision in the anterior vaginal wall, and free dissection of the flaps on

either side." It occurred to me before the operation that a transverse incision in front of the cervix, in connection with the longitudinal incision, would give ample room and make the operation comparatively easy. I decided, however, to follow out the directions given and do the operation with the longitudinal incision only. Free dissection of the flaps gave very limited working room. After the dissection was well along, feeling I was about to enter the peritoneal cavity with the finger, I was chagrined to find I had opened into the bladder—an accident which has never before befallen me in my vaginal work. This, I am certain, was due to the lack of working room with the longitudinal incision only. I at once made a transverse incision through the mucous membrane in front of the cervix, about an inch in length. This, of course, liberated the lower angle of the flaps and gave more room. I could now see as well as feel, and had no difficulty in picking up the bladder at the upper edge of the wound and carrying on the dissection until the peritoneal cavity was opened. I had some difficulty in anteverting the uterus. This I now believe to be due to the fact that I was trying to work through too narrow an incision, which could just as well be enlarged by making the transverse incision a little longer. This would greatly facilitate this manœuvre in the operation. The uterus was anteverted and the fundus brought into the wound. The right ovary had a large hematoma twice the size of the ovary. This was incised, the edges trimmed and stitched over with fine catgut, leaving the ovary. The opposite ovary was healthy, as were also the tubes. The bladder having been well dissected away, it was pushed forward. A suture of silkworm gut was carried through the vaginal flap at a point corresponding to the lateral sulcus of the vagina, immediately behind the pubic arch; then around the round ligament, including a portion of the adjacent broad ligament on the corresponding side, about one fourth inch from the horn of the uterus. The end was carried back through the vaginal flap one-half inch from the point of entrance. The same procedure was carried out on the opposite side. A third suture was carried through the vaginal flap a little nearer to the cervix, one fourth of an inch from its margin. The suture then included a portion of the anterior wall of the uterus one-half to three-fourths of an inch below the insertion of the round ligament. It was then carried out on the opposite side of the vaginal flap, corresponding with the entrance. Pulling upon these sutures brought the fundus well forward. Before they were fixed, however, the rent in the bladder was carefully closed by a running suture of fine catgut, including the mucous membrane of the bladder only. The silkworm-gut sutures were then fastened in the following manner: Over the two ends of one suture was passed a perforated shot, then coiled wire one-half inch in length, then another perforated shot, the suture brought home as tight as desired, the last shot compressed. Each one of the silkworm sutures was treated in the same manner. I have found this very con-

venient in vaginal work, facilitating the removal of the remaining loop of thread. The uterus was then in an anteverted position, the cervix pointing backward. A little gap remaining, it was closed with a catgut suture. The hymen was cut away and the margin of mucosa united with fine catgut. A self-retaining catheter was placed for forty-eight hours, when it was removed and the patient catheterized every three or four hours for four days; after that she was permitted to relieve herself. She had not a particle of leaking, but made an uninterrupted recovery. Her pulse was 86, the highest at any time; her temperature the evening of the operation was 99° F., and never as high again during her convalescence. When I came to remove the silkworm sutures on the twenty-sixth day, I had considerable difficulty, owing to the fact that the first shot placed on the two lateral sutures had become embedded under the mucous membrane. It necessitated the administration of an anesthetic to dissect them out. This could be obviated by using larger shot and attaching them to the coil of wire. The patient's present condition is satisfactory in every way. The vaginismus is entirely relieved; the uterus is fixed in anteverted position; the pain in the pelvis and back has entirely disappeared. Of course it is too soon to say that all these results will be permanent, but it is not unreasonable to believe that she will be materially relieved of her distressing symptoms. I do not wish to make any extended comments upon the operation or the technique, but I am convinced it is one of the best methods yet advocated for backward displacement of the uterus. Theoretically, to my mind, the shortening of the round ligaments by anterior vaginal section, as described by Wertheim of Vienna and Bode of Dresden, would be even better than the method used in this case. I feel confident that suspension of the uterus to the anterior abdominal wall will not stand the test of experience. I have had to regret that method of operating. I have had to do over some of my work in which I had fixed the uterus to the anterior abdominal wall for the relief of incarcerated omentum, and, in one case, intestine between the uterus and abdominal wall. In the latter case the intestine was firmly fixed by adhesions, causing incomplete intestinal obstruction from which the patient suffered greatly. If vaginal fixation proves as satisfactory as is claimed, it will be of great benefit to many. The operation does not appear to me to be as serious an undertaking as a section, and the patient certainly suffers less afterward.

DR. HALL presented a specimen of a

LARGE FIBROID OF THE UTERUS WHICH HAD UNDERGONE
CYSTIC DEGENERATION.

The tumor was somewhat larger than an adult head. It grew from a broad base from the anterior portion of the body of the uterus. The tumor wall measured about one inch at the thickest part. This thick portion comprised about half the

surface of the tumor. The remaining portion of the cyst was not more than one-eighth of an inch thick. The fluid contained in the cyst was straw-colored and had the appearance of blood serum. The body of the uterus was enlarged, and contained a fibroid the size of a large orange in the posterior wall, and one, half as large, in the anterior. Both ovaries and tubes were healthy, but were removed with the uterus. The patient from whom the specimen was removed is 38 years old, married two years, no children; referred by Dr. Quinn, of Wilmington, O. She discovered a tumor in her abdomen about three years ago, which appeared to be about the size of her closed hand. It did not enlarge perceptibly until about four months ago, since which time it has rapidly increased. November 23d: Patient convalescing.

DR. BONIFIELD.—Unfortunately I was in Berlin when Mackenrodt and Dührssen were warring over the operation. I think it was Mackenrodt's idea, followed by Martin, to make the incision longitudinal with the vagina, while Dührssen always made the transverse incision. Dührssen advised the special constructed sound, which looked something like a No. 12 male urethral sound. After he had brought the uterus forward he introduced the sound and held it in position, and then introduced a temporary stitch, after which he sewed it in place, I think, with silkworm gut. He was very enthusiastic about the operation and often did it in the clinic, letting his patients be sent home in a couple of hours in a second-class cab. I have seen since that he is not so enthusiastic, for in some cases it seems to give rise to bladder symptoms. Sometimes the uterus seems to encroach upon the bladder. Some cases have become pregnant, and there was no difficulty in delivering them.

DR. EDWIN RICKETTS.—It was my pleasure to examine the case of double uterus reported this evening. It was as clearly a case of double uterus as it is possible to conceive. I was present at the operation of fixation of the uterus. What little grounds the pessary had for its use I think have fallen as the result of this operation. In other words, the last hope of the pessary, that has been such an instrument of torture, is gone. As the doctor states, he labored under some disadvantages in trying to work through a longitudinal incision. It seems to me that with the lateral incision the operation could be done in much shorter time. I have not seen any literature as to the bladder symptoms. As Dr. Hall has said, it is too early to arrive at any conclusions as to the permanency of the results in his case. To see this patient after the operation, even when so short a time has elapsed, and to note the difference in the conditions, to see the vaginitis disappear and all these obscure painful troubles of the pelvis clear up, is very grateful. I am sure we shall have more of these operations and fewer pessaries in the future.

DR. JOHNSTONE.—The operation has always commended itself to me more than any other, but as yet I have not seen the case in which I would try it. My ardor was somewhat

dampened by the case of a wealthy German patient, whose husband took her to Europe and came home after this operation had been done. The cellular tissue was inflamed, and she had attack after attack of acute inflammation; but this patient had a very large uterus and a chronic metritis, and should have been curetted before the operation. The Alexander operation has promised more to me than any other; but I cannot agree with the previous speaker that the pessary is banished. We have not gotten to the point where we can say that we do not cure some with pessaries. Some of them I know I have cured with the pessary. If we curette and get rid of the inflammation, and make the patient wear a pessary for a year or eighteen months, she is finally completely cured. That, for a young woman, I think is often better than doing reparative work. Particularly when there are adhesions this operation commends itself to me.

DR. MAGNUS TATE.—Dr. Ricketts seems to think that if we can just fasten the uterus down all the trouble is gone. But we all know how much trouble we have with uteri normally, we might say, in this condition. Dr. Emmet, in a discussion of this sort some months ago, claimed he had never yet seen a case which required suspension of any kind, either by the Alexander method or abdominal fixation. Of course we are not all as skilful as Dr. Emmet, but I think all must bear in mind that the uterus is not normally a fixed organ, and when we tie it to anything we are liable to produce more trouble than we relieve.

DR. REAMY.—I regret that a man so able as Dr. Ricketts, so conscientious, and usually so thoroughly right, persists in sinning in one direction. This brilliant operation might have been discussed thoroughly, as it has been, without his going out of the way to attack the pessary and saying this would remove the last possible excuse for the pessary. The pessary is not an issue in cases of this character. I can show the notes of very many cases of women, some of them virgins, who had suffered from some inflammation, where the uterus was light (not very heavy), and retroverted and retroflexed so as to give great discomfort. Some of these cases have had painful menstruation, and, after marriage, sterility, and were in an abominable condition. In a large per cent of these cases the introduction of a long, narrow hard-rubber retroversion pessary has not only relieved all the symptoms of distress, including leucorrhea, and often dysmenorrhea, but pregnancy has occurred subsequently, in case of marriage, simply as the result of mechanically holding the uterus forward. In some of these cases I have allowed the instrument to be worn most of the time for years—of course the patients being required in all cases to report from time to time for examination as to condition of the vaginal mucous membrane. No competent man would introduce a pessary that causes pain. In several instances of retrodeviation of the uterus in the class of subjects now under discussion,

I have known complete recovery from the malposition as a result of the pessary alone. It would be a shame to subject such patients to surgical measures. I beg of my friend that, because he has seen cases where an improperly placed and neglected pessary had to be cut out, and cases where the pessary had produced evils, he will not, therefore, condemn its use altogether. The pessary in the hands of a skilful man, who will not be blinded to its proper use by prejudice, is a most valuable appliance.

DR. JOHNSTONE.—In those who have had retroversion and have gotten well after the use of the pessary, what is the condition after delivery?

DR. REAMY.—In a considerable proportion of these cases the condition returns after the child is born, where there is flexion; not so much where there is retroversion. Those are cases of poor development where even a pregnancy did not cure them; but in a considerable number of cases of retroversion the pessary has been effective. In retroflexion there is often thinning of the tissue.

DR. HALL.—In the normal anteflexed uterus we have a different condition from that of an anteflexed uterus from the operation mentioned to-night. The gentlemen will remember that the normal virgin uterus which is anteflexed has an elongated cervix with a sharp kink, the uterus being doubled upon itself, and these patients suffer chiefly because the uterus does not drain properly. It is in order to secure better drainage that we dilate these cases. But all this does not apply to the condition produced by the operation described this evening. I do not want to discuss the pessary in connection with the operation. I believe there are conditions in which the use of the retroversion pessary is very advantageous, but such cases as the one mentioned are practically beyond relief unless it is by operative procedure. If the bladder is dissected away and the uterus fixed forward as described, I can understand how we may have bladder symptoms, not because the uterus is pulled forward and the bladder impinged upon, but because we dissect close to the ureters, and possibly that prevents the emptying of the ureter properly into the bladder, and thus we have an anatomical reason why the patient has vesical irritability.

DR. BONIFIELD.—Don't you think it is possible that after a while the uterine wall will lose its tone and that in this way it may interfere with drainage?

DR. HALL.—Possibly. As I said, the operation is on probation.

DR. GILES MITCHELL.—What was the cause of the retroversion?

DR. HALL.—I do not know. I think, from the history of the case, the patient had a retroverted uterus, and perhaps the sexual function caused the uterus to become more painful. There was a vaginismus due to the remains of the hymen.

DR. RICKETTS.—I wish to call attention to the vaginal hys-

terectomies where we introduce stitches higher up and have no trouble.

DR. REAMY.—That is, higher up than the bladder.

DR. HALL then presented a

CYSTIC FIBROID OF THE UTERUS.

DR. GILES MITCHELL presented a

FOUR AND A HALF MONTHS' FETUS IN A FIBROID UTERUS.

REVIEWS.

HANDBUCH DER GYNÄKOLOGIE. Edited by J. VEIT. Wiesbaden, 1897 : J. F. Bergmann.

This work—the first volume of which is under review—is to be issued in three parts under the editorship of Veit, of Leyden. The present book contains contributions from Löhlein, Küstner, Veit, Bumm, and Nagel, each of whom writes a separate paper on a given subject. The names of the writers guarantee the standard character of the entire work, as they represent the best brains in modern German medical literature. In the small space devoted to a review it would be manifestly impossible to attempt even a superficial bird's-eye view of a work of this character, so that we shall be obliged to content ourselves with a few reflections which have suggested themselves in the course of looking over the book.

The first paper, on "Asepsis and Antisepsis in Gynecology," is by Löhlein. It presents the subject in its most modern aspect, and clearly points out how we have, by a process of involution, passed through all the difficulties and complications connected with antisepsis before arriving at the correct appreciation of asepsis, from which point we should have originally started.

The second paper, by Küstner, considers the "Anomalies in the Position of the Uterus and Contiguous Structures." The writer has evidently spared no pains in the careful and thoughtful preparation of this article. In the anatomical consideration of his subject the writer follows the trend of modern thought in considering the pelvic floor as of only secondary importance as a uterine support. As he strongly supports Schultze in the view that anteversio-flexion is the normal position of the uterus, he is obliged, in order to be consistent, to renounce all forms of anteflexion pessaries and to drop from consideration any forms of operative interference intended to overcome such anterior malpositions.

In the symptomatic disturbances due to the backward displacements of the uterus—for instance, the backache—Küstner suggests a reflex origin emanating from pressure or adhesions of the peritoneum. Similarly does he account for nervous and

dyspeptic conditions in these cases. Sterility, in such displacements, he attributes to the associated bending of the Fallopian tubes.

Very correctly, we think, he is opposed to the use of the sound as a routine aid in diagnosing uterine displacements. He approves of bimanual replacement in retroflexion, and his method of seizing the cervix in volsella forceps, at the same time pushing up the fundus with the fingers in the vagina, deserves a trial in difficult cases before resorting to anesthesia. In the case of adhesions he advises resort to the blind method of Schultze—that of tearing them forcibly asunder under anesthesia—in preference to the slower methods of Brand, although he confesses to causing a rupture of the rectal wall with fatal result in one of his cases. He is bitterly opposed to the use of soft-rubber rings, and again worships at the shrine of Schultze in his choice of pessaries. Simultaneously he advises syringing with cool water, which we think is not free from considerable risk.

In the operative treatment of these displacements America is given her share of credit for having established the value of the Alexander operation. Küstner advises—unjustifiably, in our opinion—total vaginal extirpation in cases of fixed retro-versio-retroflexion in women past the climacteric. Under the name of Freund's operation he describes what we are accustomed to call, on this side of the water, the Emmet perineorrhaphy. In describing his own method of operating for inversion of the uterus we find many of the features analogous to the operation of Polk.

It will, in conclusion, be of interest to many that Küstner, after twenty years' observation, has decided that women who leave their beds on the third or fourth day after labor are less liable to prolapsus uteri than those who remain in bed the full time. It is fair to add that this does not apply to women of the working classes. He lays stress on the important point that retroflexion predisposes to prolapse.

Veit confines himself to a consideration of the "Diseases of the Vagina." He attributes all cases of vaginitis to the action of micro-organisms—principally gonococci. He has little confidence in the value of alum or astringent injections in the cure of this disease. Conspicuous through its absence is a bacteriological diagnosis in cases of suspected gonorrheal vaginitis. He believes that all forms of atresia, congenital or acquired, are to be traced to antecedent inflammatory processes.

In discussing prolapsus of the vagina we find—as might have been expected—much unnecessary repetition of Küstner's paper. Curiously enough, in describing the immediate repair after labor of a lacerated perineum, he advises strategy and confesses that at times, while passing the sutures, he tells the woman that her pains are due to the management of the after-birth. It is questionable whether a physician ought to be ashamed to acknowledge a laceration of the perineum, which, to our minds, seems to be unavoidable in certain cases, and permit himself to

make use of a subterfuge in order to repair it. Our own practice has been to frankly state the facts in all cases, and to proceed openly and boldly with the little operation of introducing the needle and sutures.

In the operative treatment of complete lacerations of the perineum Veit strongly advocates the Schröder operation, and disposes of Tait's flap operation, thought of so favorably in this country, in small type.

Like Küstner's paper, that of Veit enters very much into detail in presenting theories or personal hobbies, so that it is a question whether the work can be of very great use to students at universities whose professors do not share the same views as the writers themselves. The "personal equation" is very pronounced throughout the entire book.

The paper on "Gonorrhea in Women," by Bumm, is a masterful effort written in a fascinating style. A recent writer in New York deplored the fact that a chapter on the gonorrheal diseases of women was lacking in gynecology. We can refer him with pleasure to the present article by Bumm for the missing link. The name of Bumm has become indelibly associated with the modern bacteriological aspects of gonorrhea for many years, and no better authority could have been selected.

The last paper, by Nagel, devotes itself to a thoroughly up-to-date consideration of the "Normal and Abnormal Development of the Female Organs of Generation."

Looked at as a whole, the work appears massive. The style throughout is quite clear. The illustrations are limited in number, but to the point. Many of them have full histories of the cases they illustrate in small type just beneath them. Each paper is supposed to confine itself to a single subject with its various subdivisions. The work cannot be regarded in the light of a text book, but rather as an encyclopedia.

Altogether the work is one of real merit, and, to those interested in gynecology as a specialty, this collection of individual essays covering the entire field of the diseases of women must certainly prove indispensable.

A. B.

REVUE DE GYNÉCOLOGIE ET DE CHIRURGIE ABDOMINALE.

Edited by S. POZZI. Vol. I., No. 1. January and February, 1897. Paris: Masson & Co., publishers.

We take pleasure in announcing the advent of this new Review of Gynecology and Abdominal Surgery, and predict that it will add fresh laurels to the already distinguished name of its editor.

The first number contains 194 well and clearly printed pages, which include an interesting and valuable paper by Pozzi¹ on Resection and Ignipuncture of the Ovary; Notes on a case of Deciduoma Malignum, by Monod and Chabry; Acute Decubitus as a complication of Vaginal Hysterectomy, by Ségond; a Study of Gastro-enterostomy, by Roux; and a Brief of Gynecological Literature.

¹ See p. 746, this JOURNAL.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Volume IX. New York: William Wood & Company, 1897.

This volume concludes the Diseases of the Digestive Organs, begun in Volume VIII. The first section, by Mikulicz and Kümmel, concludes their article on Local Diseases of the Mouth. This is followed by Diseases of the Intestines, by Ewald, of Berlin; Hernia, by Gibney and Walker, of New York; Diseases of the Spleen, by Stengel, of Philadelphia; Diseases of the Liver, by Semmola and Gioffredi, of Naples; Diseases of the Gall Bladder, by Murphy, of Chicago; and Movable Kidney, by Franks, of Johannesburg.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY,

IN CHARGE OF THE EDITOR AND DR. JULIUS ROSENBERG,

PEDIATRICS,

IN CHARGE OF DR. A. RAYMOND-SCHIROEDER,

OBSTETRICS.

Obstetrical Paralysis.—Tarnier¹ describes a case of obstetrical paralysis of both arms after a delivery by podalic version in which they became extended above the head.

Rupture of the Uterus.—P. A. Colmer² reports a case of rupture of the uterus in a XVpara, to show how vague the symptoms of this accident may be, as he was unable to find any cause for the prostration following labor until just before death.

Ectopic Gestation.—A tubo-uterine pregnancy successfully operated upon by J. Vassalli³ is recorded. Other successful operations for ectopic gestation are reported by M. W. Bacon⁴ and R. Peterson.⁴ H. W. Longyear,⁶⁰ in reporting seven cases in which he saved six mothers by operation, says: In examining pelvic affections of women of fruitful age the *possibility* of ectopic pregnancy should always be in the mind of the examiner. A sudden attack, in such a woman, of sharp pain in the abdomen, attended with faintness from which the patient does not soon recover as from ordinary faintness, should direct attention to ectopic pregnancy as a possible cause. Distension of the bowels by flatus is characteristic of intraperitoneal hemorrhage. Free fluid in the abdominal cavity can usually be demonstrated by percussion with change of position, in cases of

intraperitoneal rupture. The presence of intraperitoneal blood cannot be satisfactorily demonstrated by vaginal examination, as can the hematocele held tightly within the folds of the broad ligament, while in the pelvic and abdominal cavities the blood floats loosely and, except in rare instances, imparts no characteristic sensation to the examining fingers. Pelvic hematocele, not of traumatic origin, is almost certainly always the result of a ruptured ectopic pregnancy (he says "almost," wholly out of consideration for the opinions of observers of larger experience than himself). A low febrile action which is out of proportion to the other symptoms is characteristic of ruptured ectopic pregnancy. General peritonitis is not a result of ectopic pregnancy. The discharge from the uterus of a decidual membrane is a valuable sign, and when accompanied by unusually irregular menstruation is still more so. In all cases of intraperitoneal rupture operate as soon as a diagnosis is made, and do not wait for reaction to occur. Support such patients before and during operation by application of heat to the back and extremities, transfusion of normal saline solution, rectal use of beef tea and saline solution, and strychnia, nitroglycerin, and digitalin hypodermatically. If the hemorrhagic blood cannot be quickly removed, let it alone and use drainage. Do not flush the abdominal cavity to remove blood. The peritoneum will absorb the blood with much less danger than is caused by such manipulation. Use silkworm gut *en masse* sutures to close abdominal wound in cases where there has been great loss of blood, as the buried animal material is not readily absorbed where such depletion has occurred. Extraperitoneal hematocele is usually self-limiting, and will almost always result in the death of the fetus and the recovery of the patient. In cases that go on to full term operate at the end of pregnancy to save the child. Operate through abdomen, drain through vagina, and leave placenta to come away by disintegration. Electricity should be used only in cases that are so situated as to preclude the possibility of securing proper surgical treatment.

Ovarian Cyst complicating Pregnancy.—J. D. Jones³ describes such a case in which strangulation had occurred from torsion of the pedicle. Twenty-four days after operation for this, miscarriage occurred following the onset of septic symptoms.

Dilatation of the Bladder.—J. D. Jones³ withdrew by catheterization one hundred and sixteen ounces of urine in a case of distended bladder complicating retroversion of the pregnant uterus.

Exophthalmic Goitre in Pregnancy.—Tarnier⁶ has collected 20 cases of exophthalmic goitre, of which 9 improved during pregnancy, while in 11 the opposite effect was noted.

Gonorrheal Endometritis in relation to Pregnancy.—Ozenne⁶ reports the history of 3 pregnancies occurring in a woman who had a chronic gonorrheal endometritis, to show that this is not always a cause of sterility.

Superfetation.—In a case of miscarriage H. W. Mills⁷ found

a fetus of about 16 weeks and a perfectly fresh 7-weeks ovum. He does not think it probable that the latter was retained dead without decomposition for two months. The uterus was not double.

Antiseptic Dressing after Operative Delivery.—E. P. Davis⁸ advocates packing the uterus and vagina with iodoform or bichloride gauze after operative delivery or where uterine relaxation and hemorrhage are threatened.

Ergot in Labor.—E. Marshall⁹ emphasizes the danger of giving ergot until the uterus has been emptied, and believes that its administration during the second and third stages is responsible for most cases of hour-glass contraction, retained placenta, etc.

Report of Preston Retreat.—The report of the Preston Retreat for 1896, published by R. C. Norris,⁴ includes 245 deliveries with no maternal death, one case each of eclampsia, placenta previa, and puerperal insanity, four of sapremia, three twin pregnancies. Infantile deaths before or during labor, 15; after labor, 17. Ante- and post-partum 1:2000 bichloride douches were given, but are not advised in private practice.

Sciatica from Compression during Labor.—A case of sciatica caused by compression during labor is reported by A. Kennedy¹⁰ as cured by massage and nerve-stretching in fifteen days.

Multiple Fibroid complicating Pregnancy.—Such a case is recorded by T. J. Bennett.¹¹ Pressure symptoms required a complete abdominal hysterectomy, which was successful.

Pregnancy after Abdominal Hysteropexy.—Two cases of pregnancy at term after anterior abdominal hysteropexy are recorded by Gibert.¹² In the first normal labor occurred, and the adhesions between the anterior surface of the uterus and abdominal wall were afterward found intact. In this case the upper suture was at about the level of the round ligaments, the lower as far down the anterior uterine surface as possible. In the other the sutures were placed just below the insertion of the round ligaments. The fetus lay transversely in the uterus during pregnancy, but presented by the vertex. During labor a large spur was found above the fetal head on the left side of the uterine cavity at the level of its lower third, and above this a large cul-de sac formed at the expense of the left and posterior walls of the uterus and containing a hand, the feet, and the cord. The shoulders would not pass the spur below this cul-de-sac, but version was performed with difficulty and a living child extracted. No adhesions of the uterus to the abdominal wall could be found.

Laryngeal Tuberculosis and Pregnancy.—Dumont-Leloir¹³ reports a case of laryngeal tuberculosis during the existence of which pregnancy occurred. This terminated prematurely after tracheotomy, and death followed in nineteen days. The author summarizes the 5 cases previously recorded, all of which ended fatally shortly after delivery.

Ectopic Gestation.—Ectopic gestation is considered by J.

C. Stinson⁸ a strictly surgical disease, demanding removal of the mass by abdominal section as soon as the diagnosis is made. An ectopic mass should be removed by enucleation, with ligation of vessels only with absorbable ligatures. The pedicle should not be transfixed or tied in sections. This method diminishes the dangers of injuring neighboring viscera and of sepsis, and recovery is rapid. When the tube is removed it should be cut off flush with the uterus and the wound covered by a cuff of peritoneum previously dissected off from the tube. The cut edges of the broad ligament should be united by a continuous absorbable suture. Even when both appendages are removed a uterus that is in good position and not irreparably diseased should be left. If there is local or general infection the cavity should be freely irrigated with salt solution, and if drainage is required capillary gauze wicks are to be preferred.

Eclampsia.—To the list of drugs employed in eclampsia J. F. R. Appleby¹⁴ adds guaiacol. He says that when poured upon the abdomen it is rapidly absorbed, markedly diminishing arterial blood pressure and temperature and causing free diaphoresis. He used it with these results in two cases and convulsions soon ceased; but in the second case morphine sulphate was also administered hypodermatically. In reporting 5 cases of eclampsia with recovery, A. Worcester¹⁵ dwells upon the necessity for watching the amount of urine excreted by the pregnant woman, and, in event of its diminution, promoting diuresis and, if necessary, catharsis and diaphoresis. In eclampsia before term hot air baths should be tried before inducing labor, and when occurring at term they should be used while expediting delivery. Rapid manual dilatation combined with forcible delivery may increase the shock caused by the eclampsia. C. W. Townsend¹⁶ adds to the 36 cases reported by C. M. Green in *THE AMERICAN JOURNAL OF OBSTETRICS*, July, 1893, 31 also occurring at the Boston Lying-in Hospital, a total of 67 cases; 48 of these, or 72 per cent, were primiparæ. Of the 67, 48 recovered and 19 died, giving a maternal mortality of 28 per cent; 93 collected cases from private practice gave exactly the same mortality. The fetal mortality in the private cases was 43 per cent; in the hospital, 24 per cent.

Appendicitis complicating Pregnancy.—R. Abbe¹⁵ reports a case of suppurative appendicitis complicating pregnancy. Operation was followed by a normal labor at term.

Precocious Maternity.—W. M. Findley¹⁶ attended in confinement a girl 12 years 10 months of age. She had menstruated twice before marriage. Labor occurred at the seventh month, breech presentation; the child died during the second stage.

Cesarean Section.—A successful Cesarean section under difficulties is described by S. A. Bontor.²

Hydrocephalus.—I. G. Stone¹⁷ encountered a case of hydrocephalus in which he delivered the head with ease after evacuation of the fluid through the spinal canal. He thinks this presents great advantages over tapping at the base of the skull,

as the former is extremely accessible, the bony canal protects the maternal soft parts from injury, and it can be done with almost any instrument at hand.

Ergot in Pregnancy.—L. Atthill¹⁹ claims that when administered during pregnancy to women in whom a tendency to post-partum hemorrhage is known to exist, ergot tends to prevent the occurrence of hemorrhage. If so given, in ordinary doses, it does not produce any injurious effect on either mother or child, and seems to delay the beginning of labor. It tends to make the involution of the uterus more perfect, and lessens the chance of the occurrence of subsequent uterine troubles, many of which depend on imperfect involution of that organ. It will not bring on premature labor unless uterine action has previously been set going. In cases of threatened abortion it frequently seems to act as a uterine tonic, and in some cases tends to avert the danger of a miscarriage, provided the ovum is not blighted. If the ovum is blighted, and especially if it is detached, ergot usually hastens its expulsion.

High Forceps Operations.—Stoltz and Burkalow²⁰ are advocates of the high forceps. They insist, however, that the head be fixed in pelvic inlet, the cervix be obliterated, and the os nearly dilated. The application must be according to the position of the head. If judicious traction does not succeed in bringing the head through the inlet craniotomy is indicated. Tcherniewsky,²⁰ based upon extended experience and numerous experiments with specimens, condemns the high forceps most emphatically as a dangerous operation which has no sound theoretical basis.

Version and Extraction in Contracted Pelves.—Tcherniewsky²¹ reports 24 cases from St. Petersburg Maternity Hospital; he lost 1 mother (4.16 per cent) and 12 children (47.5 per cent). The author is a great admirer of the operation. The method of Lachapelle to extract the after-coming head he considers mechanically wrong, because traction upon the lower jaw does not flex the head. The methods of Mauriceau or Martin are advocated.

Cesarean Section.—Wendarskaia²² reports a case of repeated Cesarean section which has a most peculiar history. During the first section the woman was castrated (?). In spite of this she conceived twice afterward (!), the first of which ended by craniotomy, while in the second, after failure to deliver through premature labor, Cesarean section was performed. Mother and child recovered, and to avoid further conception both tubes were ligated.

Labor in a Case of Dicephalus Tetrabrachius.—Stefkins.²² After delivery of the first head and shoulders, the hands of the second child were extracted, whereupon version completed the delivery.

Ovum retained Four Years.—Resnikow²³ describes a case in which he extracted a complete skeleton four years after the death of a 7-months fetus. During the pregnancy the woman suffered from some febrile disease, after which there

was a constant discharge of pus and fetal fragments. The uterus was movable and the parametrium and adnexa free from disease.

The Giant Cells of the Serotina, and their relation to the regeneration of the epithelial elements of the uterus at the placental site.—Pels-Leusden²⁴ examined the placental site in 37 cases, and he found that the immigration of the syncytial cells into the uterine walls is for the purpose of there storing materials from which the regeneration of glandular structures originates. It is well known that during pregnancy the site of the placenta becomes nearly void of utricular glands.

Fetal Monstrosities.—Schäffer²⁵ describes a series of fetal malformations which, although exceedingly interesting, are not suitable for abbreviated description. The following extracts from the author's investigations may be noted: Anomalies of development in the lower digestive tract, communication of rectum with bladder, entire absence of rectum or absence of the anus only, are easily explainable by history of development of these organs. Such anomalies date with certainty prior to the eighth week of gestation, to a time when the head gut is in direct communication with the allantois and a connection of this cavity with the external body surface is still absent.

Cases of Intrauterine Injury of the Umbilical Cord.—Meyer.²⁶ Rupture of the umbilical vessels is most frequent in insertio velamentosa, but Meyer describes two cases in which anomaly was absent and in which the injury could not be explained. Meyer, like Virchow, Kölliker, and Hyrtl, found that the umbilical vessels have no vasa vasorum.

Does the Human Blood contain Antitoxins after a Streptococcic Infection?—Neufeld.²⁶ The testing of the blood serum in a case of recovery from streptococcic septicemia showed that this produced no immunity against a subsequent infection. This result confirms the animal experiments made by other investigators, which show that, differing from the diphtheria bacillus, the streptococcus produces no antitoxin which gives subsequent immunity.

Puerperal Infection.—Another instance is added by W. Edmunds²⁷ to the list of severe cases of puerperal infection successfully treated by antistreptococcus serum.

The Induction of Premature Labor.—Stieda²⁷ reports 12 cases from the Giessen clinic in which an elastic balloon (mètreurynter) introduced above the internal os was eminently successful in the induction of premature labor. With rational precautions there is no danger from infection or air embolism.

Chorea during Pregnancy.—Festenberg.²⁸ The patient was a IIIgravida, who in her previous pregnancies had no nervous disturbances and in whom no predisposing cause could be found. The disease was a purely reflex neurosis, the interior of the uterus being the source of irritation. The commencement of the chorea was, as is usually the case, the third month of pregnancy, appearing and disappearing with great suddenness, *cessante causa*.

Bacteria in Human Milk, and the Etiology of Mastitis.—Köstlin.²⁹ The breasts of 100 pregnant women, 137 puerperæ, and 60 children were subjected to a bacteriological examination, with the following results: 1. Milk in the breasts of pregnant women, puerperæ, and children contains bacteria in the majority of cases—namely, 86, 91, and 75 per cent respectively; this result coincides with the observations of other authors. 2. The staphylococcus is the bacterium usually present. 3. The bacteria find access to the milk from without, from the areola; their entrance by the circulation has never been conclusively proven. 4. These bacteria are, as a rule, innocuous and harm neither mother nor child. 5. A mastitis without the presence of bacteria does not exist. 6. The infection in mastitis proceeds from without, through the lymph channels or from abrasions of the skin; the character of the infection varies with the different bacteria. The usual form of mastitis is caused by the staphylococcus aureus, while the rarer types of pseudo-erysipelas and retromammary abscess depend upon the presence of streptococci. A mixed infection is also possible. 7. Metastatic mastitis by way of the circulation has never been observed. The position that mastitis may ensue from a stagnation of milk without the presence of bacteria is untenable; the milk stagnation is the result, but not the cause, of mastitis. The prophylaxis consists in cleanliness.

Hemoglobin and Red and White Blood Corpuscles during Pregnancy and Puerperium.—Wild.²⁹ During the last weeks of pregnancy a small increase of hemoglobin and red blood corpuscles and a decided increase of white blood corpuscles is observed. Through the act of labor, probably caused by the accompanying loss of blood, the hemoglobin and red blood corpuscles are diminished, while during the course of puerperium a gradual increase is noted. Nursing exerts a favorable influence upon the quality of the blood.

GYNECOLOGY AND ABDOMINAL SURGERY.

Deciduoma Malignum.—Profuse metrorrhagia, an enlarged uterus, cachectic appearance, and the removal of hydatidiform cysts by curettage led C. Monod and L. Chabry³⁰ to suspect the presence of a deciduoma malignum. The uterus was removed by vaginal hysterectomy, and was found, according to Macaigne, to contain a decidual sarcoma. G. Durante³¹ believes that a tumor of this character is wrongly termed deciduoma malignum, and should be described as an ectoplacental epithelioma, developed from a portion of the fetal ectoderm deeply engrafted into the uterine wall. He shows, by drawings, the similarity of the fetal structure and the neoplasm.

Prolapse of the Uterus.—The indications for vaginal hysterectomy in cases of prolapse of the uterus, according to A. F. Currier,³² are: 1. Such a condition of the protruding tissues as would render firm union, by means of plastic operations, tedious

or improbable. The atrophic tissues of the aged which have been stretched and irritated for years are not favorable for such operations. 2. Disease of the uterus or the surrounding structures which renders them a menace to life or health. 3. When the maximum of discomfort is constantly attributable to prolapsed tissues, and when the patient is precluded by her infirmity from earning her living.

Displacements of the Uterus.—Believing that displacement of the uterus as a pathological factor maintains only from causes existing in that organ itself, O. B. Will²³ holds that restoration of equilibrium, not fixation or removal, is required. He advises resection of the uterus when prolapsed, in order to reduce its size and weight; and in retroversion, breaking up adhesions through an incision in the posterior fornix and placing the uterus in exaggerated anteversion, where it is maintained by vaginal tampon until cicatricial contraction of the wound affords it support.

Laceration of the Cervix.—Operation for laceration of the cervix is considered by W. O. Henry²⁴ as indicated for deep lacerations which allow the lips to roll widely out, as a prevention of cancer; those deep enough to give rise to hemorrhages; those accompanied by great subinvolution, especially at the cervix; all which cause extreme nervousness, shown by a sensitive point in the angle of laceration; when abortions are frequent and traceable to no other cause; when it is the cause of any distressing symptoms not traceable to other cause capable of removal by simpler means.

Cancer of the Uterus.—G. Bouilly²⁵ bases his conclusions upon 127 vaginal hysterectomies for cancer of the uterus, in 25 of which death resulted immediately after operation, and of which 66 have been under observation. The high mortality is due to including cases operated upon before the technique was elaborated. He believes that radical cure is almost never obtained, and gives statistics of the times at which the disease recurred in his cases. In all under 30 recurrence was extremely rapid; between 30 and 37 the average time at which it took place was six or seven months. Pregnancy, labor, and lactation seem to have an unfavorable effect. The chances improve with the age of the patient; but after 60 years of age operation is rarely called for, as the lesions are usually far advanced when coming under treatment, and hysterectomy should be done only when palliative methods fail.

Actinomycosis of the Breast.—L. L. McArthur⁴ records a case of actinomycosis of the left breast, the origin of the infection unknown. The breast was nearly dissected off, being left attached only at one side, the diseased tissue under the breast removed, and potassium iodide given. Recovery.

Reflex Vomiting.—Broun⁴ reports a case of obstinate reflex vomiting for four days after an abdominal hysterectomy for uterine fibroid, in which boroglyceride gauze packing of the pelvis was employed. Vomiting ceased upon removal of the gauze.

Imperforate Uterus.—Such a case is described by R. Peterson⁴ as found in a woman 75 years of age. The uterine cavity was absent, and the cervical canal less than an inch in depth.

Uterus Didelphys.—H. Chéron¹³ describes a case of uterus didelphys with single vagina, in which miscarriage from the left uterus occurred at the sixth month. Two previous pregnancies in the right uterus had terminated spontaneously at term, children living. The paper includes observations of 17 cases published by others.

Casts of Uterine Cavity.—From casts of 80 uterine cavities P. Mauclaire³⁶ concludes that the variations in their shape occur chiefly at the cornua. These are given off either at a right angle to the axis of the general cavity or at an obtuse angle, and are in some cases long, narrow, and curved. This varying direction and shape of the cornua explains the difficulty experienced in thoroughly cleaning them, and the frequent recurrence of metritis after curettement when no salpingitis exists.

Electro-cautery as a Hemostatic.—A. J. C. Skene¹⁰ describes his artery forceps, compression forceps, and pedicle clamp by which hemostasis is obtained by means of an electrical heating attachment, and explains their employment. When applied to vaginal hysterectomy the operation is performed in the same way as when forceps are used to control the bleeding, with the difference that instead of leaving the forceps on long enough for compression alone to arrest the hemorrhage, the heat completes the hemostasis and the forceps are removed at once.

Metritis.—Touvenaint³⁷ recommends curettement followed by intrauterine irrigations in cases of acute metritis after labor or abortion. Except when pyosalpinx exists, he uses the same treatment, with or without amputation of the cervix, followed by repeated applications of tincture of iodine or chloride of zinc, in chronic cases.

Uterine Fibroids.—A. H. Goelet¹⁵ thinks that vaginal ligation of the uterine arteries for fibromata is useful in some cases, as it does not mutilate or unsex the patient, causes complete atrophy or almost so within six months after relieving symptoms promptly, involves little risk, and convalescence is not protracted. He considers it necessary to tie in two places and cut between in order to secure complete obliteration of the arteries. The technique of this is described.

Dysmenorrhea.—In a discussion upon dysmenorrhea W. Gardner³⁸ spoke of its symptomatology and diagnosis, and F. A. L. Lockhart of the treatment. The character of the papers is such as to prevent justice being done to them by a brief abstract.

Dysmenorrhea and Labor Pains.—Fliess.³⁹ Cases of dysmenorrhea in which the pain extends beyond the beginning of the flow are largely of *nasal* origin. This is not so surprising as it seems at first sight; then during the menstrual period the nose is the seat of regular changes. Swelling, heightened

sensitiveness, inclination to epistaxis and congestion are generally observed. These phenomena are especially noticeable in the inferior turbinated bones, which should thus be called "the sexual regions of the nose." Pathological changes in this region condition the nasal form of dysmenorrhea. The proofs of this are: 1. Cocainizing of the genital region of the nose stops the dysmenorrheal pain for the time being; 2, cauterization of this portion of the nose cures the dysmenorrhea permanently or for some time.

The pathological changes in the nose may be the result of infectious diseases (scarlatina, influenza, diphtheria), or the nasal congestion, which appears regularly with the advent of menstruation, has, in the first years after the establishment of puberty, not found a normal relief by a free uterine flow. The latter condition repeats itself during pregnancy. The menstrual process continues during gestation, in so far as the periodical changes in the nose do not cease. This series of incomplete menstruations terminates finally in the grand menstruation, the confinement. The confinement has all the nasal symptoms of a regular menstruation. True labor pains appear during the period of dilatation: they begin in the sacrum and extend to the hypogastric region. These pains can be arrested by anesthetizing the nose with cocaine. Pains about the symphysis and in the vagina or coccyx are, however, of purely local origin and absolutely independent of the nose. The complete analogy between menstruation and parturition shows their time relation. Whenever the time of gestation deviates from the normal period of pregnancy (ten to twenty-eight days), then the woman has been subjected to irregular menstrual periods.

Saline Injections.—A successful case of intravenous injection of salt solution after laparotomy for ruptured tubal pregnancy is put on record by A. H. N. Lewers.²

Displacements of the Uterus.—Alexander's operation is preferred by L. Frank³⁹ to other forms of treatment in cases of movable retrodisplacements incurable by non-operative methods, and in cases where the appendages are not to be removed.

Cyst of the Canal of Nuck.—The details of an interesting case of this affection are given by C. G. Cumston,⁴⁰ who operated upon the patient. He describes such cysts as oval, cylindrical, or pyriform, and calls attention to their situation as being within the inguinal canal or at the upper and external aspect of the labium majus, whereas cysts of the vulvo-vaginal gland are at the lower part of the labium. A true cyst of the canal of Nuck may be, at times, reduced *en masse* into the abdomen, but returns when pressure is removed; a congenital hydrocele is reducible by decubitus or pressure.

Use of Uterine Sound.—F. O. Marsh⁴¹ advises wrapping the sound with cotton and dipping it in carbolyzed glycerin before introducing it through a cervix which has been carefully disinfected. He considers the use of the sound to be safe if these precautions are observed, and claims that he has in this way

twice introduced it into the pregnant uterus without causing abortion.

Microscopic Examination of Uterine Tissue.—W. W. Fullerton⁴² and P. Findley⁴³ publish pleas for systematic microscopic examination of uterine scrapings and excised portions of the cervix, with particular reference to the early detection of malignant disease. Findley describes a method of preparing the specimens for study.

Endometritis.—F. T. Meriwether⁴⁴ condemns the practice of dilating and curetting in one's office, and insists on as strict asepsis as in major operations.

Sarcoma of the Breast.—P. Findley⁴⁵ reports a case of sarcoma of the breast in which the appearance of multiple primary tumors is mentioned as supporting Cohnheim's hypothesis of the embryonal origin of neoplasms. Two nodules appeared simultaneously in the right breast, which was amputated by Senn, and multiple small growths, presumably fibromata, in various parts of the body. Two sarcomatous nodules appeared later in the left breast, which Findley removed. The small growths have not appreciably increased in size.

Ovarian Tumors.—A dermoid cyst containing a well developed tooth embedded in a small piece of bone was removed by B. H. Wells.⁴⁶ A. Voisin⁴⁷ records a case in which the patient had marked hallucinations of persecution, which disappeared entirely after removal of an ovarian dermoid cyst. Dumont-Leloir⁴⁸ describes a laparotomy for the removal of a large proliferating ovarian cyst with generalization in the abdominal wall, peritoneum, and omentum. No recurrence had been noted in 5 months. The description of a supravaginal hysterectomy for a large uterine fibroid and several ovarian cysts, from one of which 4 gallons of fluid were removed, is given by A. G. Dale.⁴⁹ M. McLean⁴ reports the removal of double ovarian cystomata complicated by 4 parovarian and 1 intraligamentous cyst. Recovery.

Septic Peritonitis.—Le Roy Broun⁴ reports a death from septic peritonitis resulting from a small stitch abscess in the abdominal walls complicated by an acute nephritis following abdominal hysterectomy.

Toxic Effects of Iodoform Dressings.—M. McLean⁴ classes the symptoms of iodoform poisoning as follows: 1. Cutaneous irritation: eruptions of the skin in erythematous or eczematous form, associated with the pruritus of urticaria. 2. Cerebral disturbances: headache, often very marked; delirium, more or less active; melancholia, hallucinations; pupils occasionally dilated, more often contracted and motionless; pulse running early up to 135 to 150 per minute, quality rather small and wiry; rapid increase of temperature. 3. Syncopal or asthenic form: *dizziness, mental confusion*, great lethargy; weak, rapid pulse; some *paralysis of the sphincters*; death, sometimes suddenly by heart failure. The drug is rapidly absorbed and slowly eliminated. Brettaner⁴ never uses iodoform in a puerperal uterus or just after abortion, for this reason;

and R. A. Murray⁴ does not employ it under these circumstances or after curetting.

Hematocèles due to Ectopic Gestation.—Two cases of suppurating hematocèle due to ectopic gestation are reported by C. P. Noble,⁴ who operated upon them by vaginal incision and drainage. In both the immediate results were favorable, and in one the cure has lasted one year.

Vaginal Incision and Drainage for Pelvic Inflammation.—A. W. Abbott⁴ believes that this operation should be adopted, at least as a preliminary measure, in all cases of pelvic inflammation uncomplicated by tuberculosis, appendicitis, intestinal obstruction, malignant disease, or large or inaccessible tumors or abscesses above the level of a line joining the anterior superior iliac spines. He bases this view upon the results of the treatment of 30 cases of pelvic inflammation in which none of the above conditions existed and in which no part of any organ was removed. Curetting was done in a few cases, and in three instances Alexander's operation was added. No deaths occurred, and 27 have perfectly recovered, the last operation being ten months ago. No tendency to hernia has been noted. Iodoform gauze is preferable to wicking, as it will, when saturated, carry off a third more fluid in the same time.

W. D. Haggard⁴ divides the especial indications for vaginal section, aside from explorative purposes, into three classes: early cases of acute suppurating salpingitis from recent gonorrhea or septic abortion; incipient post-puerperal peritonitis; large pyosalpinx and true pelvic abscess. In old, recurring puriform disease, where both adnexa are so hopelessly destroyed as to demand extirpation, the uterus should also be removed. Whenever the uterus is diseased by pyogenic infection beginning in its own cavity and extending and destroying the function and integrity of its appendages, it should be removed, preferably by the subpubic operation.

Hysterectomy.—J. H. Carstens⁹ performs vaginal hysterectomy for cancer of the uterus in the early stages; bilateral pus tubes; chronic inflammation of the uterus and appendages, with adhesions; retroversion of the uterus with chronic inflammation of the appendages and adhesions to the rectum, etc., if near the menopause, otherwise a conservative abdominal section; complete procidentia which cannot be remedied by plastic operations; extensive lacerations; degenerated mucous membrane, with unilateral pus tube, near the menopause.

George Elder⁴⁹ reports two vaginal hysterectomies for cancer of the uterus, and one abdominal for fibroid, with recovery; also one pan-hysterectomy by the abdominal route for intraligamentous fibroid, followed by death. While believing that no one operation is applicable exclusively for the removal of uterine fibroids, he prefers total hysterectomy for the majority. Other successful pan-hysterectomies are recorded by F. A. Purcell⁴⁹ for fibromyoma, and by J. W. Taylor⁴⁹ one for myoma of the uterus and another for a large ovarian tumor.

J. Pantaloni,⁵⁰ in concluding an article upon abdomina

hysterectomy, states that Doyen's method combined with the collarette of H. Delagénère is the best form of operation if the inclined position is employed. It is indicated in cases of uterine fibroids which must be operated upon through the abdomen, and in some which are operable through the vagina, in certain cases of cancer of the body of the uterus, in bilateral suppurative disease of the appendages, in inveterate cases of metritis, and in the form of Porro's operation when delivery by the natural route is impossible.

Burckhard²⁹ reports 50 cases of vaginal hysterectomy, operated after the method of Doyen-Landau, from the University clinic of Greifswald. Cases in which the uterus was not perfectly movable and the parametria were free from disease were not considered proper subjects for operation. Ten patients died immediately after the operation (20 per cent), although in one case death was not due to the operation. Recurrence was noted in 18 patients (36 per cent), while in 17 patients the disease did not return; from 8 patients no answers were received.

Funke²⁴ considers the indications for abdominal hysterectomy and the relation of the operation to myomotomy; his paper is based upon 25 cases operated in Freund's clinic. The general indications for this operation are the malignant tumors which extend up to and above the umbilicus, also those in which the adnexa are the seat of inflammatory or malignant disease. Cesarean section in which cancer forms the indication should only be performed by the abdominal route, and also cases in which the disease has so far progressed that the success of the operation is questionable. The early stages of cancer belong to the vaginal route, although in most cases of cancer of the corpus laparotomy is preferable (Freund's mortality of the latter is twenty per cent). Myomata smaller than a child's head, easily accessible through the vagina, and in which the patient's general condition is good, are to be operated per vaginam. On account of numerous adhesions usually present adenomyomata demand, as a rule, laparotomy. In simple myomata, supra-vaginal amputation; the same holds good for gangrenous degeneration of subserous myomata; while if the degeneration is submucous, total extirpation is indicated.

Decubitus Acutus after Vaginal Hysterectomy.—In 542 vaginal hysterectomies Paul Ségond³⁰ has observed this complication only 6 times. Clinically it is exactly comparable to decubitus acutus of spinal origin. It is a trophic disturbance remarkable for the precocity of its appearance and its rapid development, which occurs within three or four days after operation. It leaves, after separation of the eschars, deep ulcers which cicatrize slowly, but which cause no more serious results than a delayed convalescence. The affection is caused by lesions of the pelvic nerves due to traction or forcipressure, but the length or difficulty of the operation seems to have no influence in its production. This appears to depend especially upon a predisposition which Ségond believes occurs particularly in women who have long been ill and who suffer from periute-

rine inflammations capable of provoking in the pelvic nerves an inflammatory process which is aggravated by the operative proceedings, giving rise to the characteristic lesions of *decubitus acutus*.

Resection and Ignipuncture of the Ovary.—S. Pozzi³⁰ gives the results of five years of conservative work upon the ovary, prefacing his remarks by a review of the cases reported by others. For ovarian neoplasms he considers conservative treatment applicable only when there is no suspicion of their malignancy. When applied to cases of chronic oöphoritis integrity of the tube is essential. Its reconstruction is possible, but the uterine extremity is generally somewhat closed and its ciliated epithelium and contractility lost. Creation of a new abdominal ostium is not advised, but if contracted it may be dilated. Conservative treatment is advised in cases with large follicular cysts, cysts of the corpus luteum, and sclero-microcystic oöphoritis, the characteristics of each of these being described. If the lesions are relatively large, resection is to be chosen; if small, resection of the region containing small cysts, or ignipuncture, separately or combined. Simple puncture with a bistoury does not destroy the cyst wall and it may recur; ignipuncture sterilizes and favors resorption of sclerotic tissue rather than causes the formation of new connective tissue. Before operating the two ovaries should be compared; if one is diseased it should be removed and the other saved; if both are altered bilateral conservation is proper. The portion to be removed is circumscribed by two deep incisions with the knife and the removal completed with scissors. If the raw surfaces show small cysts ignipuncture is added. Oozing from the cut surfaces is diminished by slight cauterization with the thermo-cautery at dull-red heat. The wound is closed by a continuous suture from one end to the other and returning to the same point; two tiers are used, if necessary, though one usually stops hemorrhage. If this continues one or two deep sutures of fine silk are used. Ignipuncture is performed with the Paquelin cautery, at a cherry-red heat, being introduced for one or two seconds at points found by palpation to be depressible. If necessary the ovary is hemisected and cysts found in its interior are cauterized, any vessel which bleeds persistently being tied with fine catgut. Complementary operations include abdominal hysteropexy for retroflexion, and salpingorrhaphy when there is danger that the tube may become adherent at a distance from the ovary, the abdominal ostium being first enlarged by a sound or reopened by salpingotomy, if closed, rather than by salpingostomy—the formation of a new opening. Extirpation of small parovarian cysts, which he considers responsible for some of the pains and troubles of menstruation, is performed by an incision into the broad ligament between the tube and cyst, near the latter, partial enucleation of the cyst, completed by scissors, and light cauterization of the bleeding surface. The condition of the vermiform appendix should be examined. Pozzi gives the results of 62 conservative operations upon the

ovaries, all recovering, but 4 of whom have been too recently under treatment to make the result conclusive, and 10 of whom have disappeared. Of the 48 traced, 33 were entirely cured or greatly improved; 7 unchanged; 8 required radical operation subsequently; 12 have become pregnant, 1 twice; of these there were: after unilateral conservation, 8 pregnancies—5 normal labors, 2 now nearly at term, 1 abortion; after bilateral conservation, 4 pregnancies—3 normal labors, 1 abortion.

Vesico-vaginal Fistula.—In reporting the cure of a vesico-vaginal fistula complicated with cicatricial obliteration of the vesical orifice of the urethra, P. Berger³⁶ insists upon the importance of the preliminary treatment of such cases. This consists in thorough dilatation of the vagina, which not only gives better access to the operative field, but relieves the tension upon the borders of the fistula exerted by cicatricial bands, the most frequent cause of failure to secure closure of the fistula. Lipinsky³⁶ records two cases of vesico-vaginal fistula successfully treated by episiotomy, with the formation of a recto-vaginal fistula made by an incision through the upper fibres of the sphincter ani. P. Bazy³⁶ describes a urethro-cystoplasty which he performed in a case in which the entire vesico- and urethro-vaginal wall had been destroyed, the urine being retained by a mechanical appliance. Péan³⁶ contributes the description of a case in which he restored the urethra, bladder, vagina, and rectum, and secured satisfactory control of the urine and feces, though menstruation occurred through the urethra.

Biological Basis of Menstruation.—J. C. Webster⁴¹ discusses the various theories which have been advanced to explain the meaning of menstruation. He believes that it is not a necessary accompaniment or sequel of ovulation, but that there is some relationship between the processes, as is shown by cessation of menstruation in many cases after removal of the ovaries. He mentions Lawson Tait's statement that removal of the tubes without the ovaries is followed in 95 per cent of cases by the same result. A special nervous mechanism controlling menstruation, as suggested by Johnstone, probably exists, but to Webster it seems possible that it is plexiform rather than limited to a single nerve. The view that menstruation is a process by which the uterine mucosa is prepared to receive the fertilized ovum is rejected by the writer for many reasons, as are also other theories of the relation of menstruation to conception. The suggestion, advanced by Geddes and Thompson, that the menstrual process is related to the balancing of anabolism and katabolism in the female organism, is, however, considered worthy of study and forms the basis of the paper. He says that throughout the animal and vegetable kingdoms the distinctive characteristic of the male sex is katabolism and of the female anabolism, and he points out many reasons for this belief. In the female a surplus is produced in the system after puberty, because the anabolic preponderates over the katabolic. When pregnancy occurs this excess is

spent in the nutrition of the ovum during its parasitic intrauterine life and during lactation. When these methods of using the anabolic surplus are wanting, menstrual losses occur in order that it may be disposed of. The rhythmical character of the menstrual function has probably been gradually determined by the forces of evolution, and its marked variations in the human female (unassociated with pathological conditions) point very strongly to an early period of instability in the process, in which the present variations are probably atavistic reminiscences. Although most concisely stated in the author's article, it is impossible to present his reasons for these views in an abstract.

The Results of Ovariectomy in Malignant Ovarian Tumors.—Kratzenstein²⁴ has made a statistical compilation of 100 cases of malignant ovarian tumors operated in the Berlin University clinic (Olshausen) during 1879-1892, and from which reports could be obtained. Olshausen divides these malignant tumors into primary carcinomata, sarcomata, carcinomata the result of malignant degeneration of primarily benign tumors, and fibrosarcomata. The primary results show a mortality of 28 per cent; of these 11 per cent were due to infection. Recurrence is noted in 34 per cent; of these 32 per cent had died. In fibrosarcomata recurrence was not observed; for this reason Kratzenstein says these tumors should not be classed among the malignant growths. Permanently cured were 36 per cent, 35 per cent still alive, while 5 per cent had perished from intercurrent diseases.

Ovarian Hernia.—Biermer.⁵² A multipara, 37 years old, had observed a swelling in the right inguinal region for about fifteen years. The diagnosis of hernia ovarii or hydrocele of the ligamentum rotundum was made. A subsequent operation showed the former to be correct. The woman recovered. The second case concerns a girl who had a swelling in the right inguinal region, which was taken to be a dislocated ovary. In chloroform narcosis the reposition of the latter was accomplished, and the patient was discharged wearing a truss.

Dermoid Cysts of the Ovary with Cancerous Degeneration and Metastases.—Yamagiva.⁵⁶ The first case was a dermoid cyst of the ovary from the wall of which projected a glandular carcinoma with metastases in the lymphatics. The origin of the cancer was, with great probability, a rudimentary mamma found in the dermoid cyst. The author considers this case as a unicum; glandular cancer of a dermoid cyst has previously not been observed. The second case was an epithelioma arising from the cyst wall, also possessing metastases in the lymphatic glands.

Etiology and Therapy of Uterine Cancer.—Bäcker²⁵ investigated the material of Prof. Kézsmarszky's gynecological clinic in Budapest; 705 cases of uterine cancer were found among 11,095 cases (6.35 per cent) who applied for treatment during the years 1883-1895. Hysterectomy was performed in only 70 cases. Bäcker confirms that uterine cancer is most

frequent during the climacteric period; 41 per cent were found between the ages of 41 and 50 years. Numerous confinements predispose to the disease, but the act of labor—that is, traumatism—has no direct influence upon the disease. The endometritis, however, which is apt to be the result of many confinements, is a most potent factor in production of this disease. Syphilis, tuberculosis, races, or excessive sexual intercourse seem to have no relation to cancer of the uterus. Prophylaxis consists in the early and rational treatment of endometritis. The therapy is hysterectomy if the case comes under observation while still in an operable condition.

Suture Materials for Surgical and Gynecological Purposes.—Gubaroff.²⁷ The disadvantage of silk is in its capillarity, while the sterilization of catgut is often unreliable. Silkworm gut is an excellent sewing material, but expensive, the threads are always short and not suitable for continuous sutures, and to tie a good surgical knot is not easy and in some locations is almost impossible. Gubaroff recommends linen threads, which are inexpensive and possess all of the advantages and none of the disadvantages of other suture materials in vogue. His method of preparing the sutures is as follows: The threads are boiled in a solution of soda to remove the fat, and afterward washed in cold water. They are again twice boiled (five to six minutes) at an interval of six hours, after which they are kept in alcohol. Drying in a clean room (operating room) and rolling upon glass spools is the next step, after which they are placed for twenty-four hours in a twenty-five to thirty per cent solution of celloidin (Schering) in equal parts of alcohol and ether. To this solution is added one per cent of sterilized oleum ricini. The sutures are then wound upon a wooden frame for the purpose of drying, and the excess of celloidin is removed by the finger or clean paper. They are kept in a closed glass vessel, and before their usage are twice boiled in sublimate 1:1000 (six to eight hours and immediately before the operation).

Observations in Erysipelas Inoculations on Human Subjects.—Petruschky⁶⁴ reports a series of experiments made by him upon the suggestion and under the guidance of Robert Koch, the object of which was to definitely settle the therapeutic value of such inoculations in the treatment of malignant growths. Streptococci, which possessed for rabbits the highest degree of virulence, could not produce erysipelas in man. Cultures taken directly from suppurations in man, and inoculated without a preceding animal passage, succeeded in producing the disease. However, even these cultures were not always successful, and a number of failures were noted. In one woman who suffered from cancer eleven inoculations were made at an interval of from one to two weeks; typical erysipelas resulted every time, which proves that even repeated infections do not cause immunity. In a case of cancer of the breast the disease reappeared in the scar; inoculations seemed to have some success, as a superficial progress was not observed;

the glandular infiltrations, however, remained unchanged, and the treatment much diminished the patient's strength; thus the therapeutic success was not encouraging. Further experiments demonstrated conclusively the uselessness of the antitoxin of Marmorek and Aronson; inoculation with streptococci promptly produced erysipelas, in spite of a preceding immunization with antistreptococcic serum. If this serum has no protective it certainly has no curative powers.

Hermaphrodite.—Walcher⁵⁵ describes a fetus who died three weeks post partum. The clitoris resembles a penis, at the root of which a narrow opening is seen which leads inward. The small labia are absent; instead of these there are two folds of mucous membrane extending to the root of the clitoris, and which become tense when the clitoris is elevated. During life the sex of the child could not be determined, but at a subsequent post-mortem a vagina, uterus, and well-developed adnexa were found.

Cancer of the Rectum.—Fuzinami⁵⁶ reports a case with a metastasis in the femur and consequent fracture of the thigh. The liver was the seat of a secondary invasion.

Etiology of Cancer.—Yamagiva and Shitayama.⁵⁶ A small tumor of the hepatic duct, a microscopical examination of which showed the typical picture of adenocarcinoma, caused a marked stenosis of both ducts, hydrops of the gall bladder, and general icterus. Between the first and second lumbar vertebræ an exostosis was found, which was the source of a continuous irritation and the probable cause of the new growth. In the second case cancer of the gall bladder was found; the authors believe that the numerous calculi present were responsible for the cancer.

Cancer of the Uterus.—W. H. C. Newnham⁴⁸ puts on record 3 cases of cancer of the uterus in which the immediate results of vaginal hysterectomy have been favorable. He prefers this operation to supravaginal amputation for disease of the cervix only. As to the etiology of malignant disease in such young women, 28, 38, and 39 years of age respectively, he questions whether very early and frequent childbearing may not have been a factor. The first had 5 children between 16 and 21 years of age; the second married at 17 and had 10 in fourteen years; the third married at 21 and had 10 in eighteen years.

Cysts of the Hymen.—Palm.²⁶ The author believes that the origin of these cysts are the sebaceous glands, although it is possible that Skene's glands may be an etiological factor.

Sarcoma Deciduo-cellulare.—Reinicke²⁶ describes a case and classifies the tumor present as a sarcoma teleangiectodes hemorrhagicum. He also discusses tumors of a similar character, termed by other authors deciduoma, etc.; these tumors he believes to be sarcomata; then their decidual or chorionic origin has not been proven. A case of sarcoma deciduo-cellulare has with certainty so far never been proven, but the so-termed new growths are nothing but large-celled sarcomata of the uterus.

probably originating from the myometrium. A transition of the true cells of the decidua gravitating into these sarcoma cells has not been observed, although it is possible. Pregnancy is not the cause of the new growth, but only an accidental accompaniment, and the commencement of the tumor probably predates the beginning of pregnancy. The author states that his criticism concerns only deciduo-sarcomata of Sänger's type, and admits that there are malignant new growths which have their origin in the pregnancy products in the chorionic villi. Whether these latter tumors must be classed among the sarcomata or carcinomata can at the present time not be decided.

Sclerosis of the Uterine Arteries and Climacteric Hemorrhage.—Reinicke.²⁹ Excessive menstrual flow during approach of the menopause is frequently observed, at times so severe that the woman's health is endangered. Reinicke believes that a disease of the uterine vessels is an important etiological factor in this complaint, and, with the aid of Leopold, the author subjected a number of uteri to a careful microscopical examination. He found sclerotic and hypermytrophic changes in the wall of the vessels, and an atrophic condition of the uterus, a consequence of the organ's insufficient nutrition. The therapy for this condition is very unsatisfactory: hydrastin, ergotin, or electricity is apt to be useless and may cause an increased flowing; the same holds good for curettement. Rest and proper hygiene are of service in some cases, while in others hysterectomy may become necessary.

Foreign Bodies in the Vagina.—Popon⁶⁷ removed from the vagina of a primipara a copper candlestick with a piece of candle; soon after this the woman was delivered of a living child. During the puerperium slight colpitis and endometritis. Zobolotzki⁶⁸ found a spur in the vagina, which had injured the retrovaginal wall and caused a fistula.

Primary Cancer of the Fallopian Tube.—Eckhardt²⁶ describes a case, without involvement of the uterus or ovaries.

REFERENCES.

- ¹ Jour. des Sages-Femme, March 16th. ² Lancet, March 6th. ³ Med. Rec., March 20th. ⁴ Am. Gyn. and Obst. Jour., March. ⁵ Jour des Sages-Femme, March 1st. ⁶ Jour. de Méd. de Paris, March 7th. ⁷ Lancet, March 13th. ⁸ Ther. Gaz., March 15th. ⁹ Ann. Gyn. and Ped., March. ¹⁰ N. Y. Med. Jour., March 27th. ¹¹ Am. Jour. Surg. and Gyn., Feb. ¹² Am. Jour. Med. Sci., April. ¹³ L'Obst., March. ¹⁴ Bost. Med. and Surg. Jour., March 18th. ¹⁵ Med. Rec., March 6th. ¹⁶ Med. News, March 13th. ¹⁷ Med. News, March 6th. ¹⁸ Bost. Med. and Surg. Jour., March 4th. ¹⁹ Brit. Med. Jour., March 6th. ²⁰ Russ. Zeitschr. für Geb. u. Gyn., Bd. x., H. 4. ²¹ Wratsch., No. 19. ²² Russ. Zeitsch. für Geb. und Gyn., Bd. ix., H. 6. ²³ Süd-Russische Med. Zeits., No. 12. ²⁴ Zeit. für Geb. u. Gyn., Bd. xxxvi., H. 1. ²⁵ Arch. für Gyn., Bd. liii., H. 1. ²⁶ Deutsch. Med. Woch., No. 11. ²⁷ Monats. für Geb. u. Gyn., Bd. v., H. 3. ²⁸ Deutsch. Med. Woch., No. 13. ²⁹ Arch. für Gyn., Bd. liii., H. 2. ³⁰ Rev. de Gyn. et de Chir. Abdom., Jan., Feb. ³¹ Jour de Méd. de Paris, March 14th. ³² Intern. J Surg., March. ³³ Chic. Clin. Rev., March. ³⁴ Med. Rev., March 20th. ³⁵ Bull. gén de Thér., Feb. 28th, March 15th. ³⁶ Ann. de Gyn., March. ³⁷ La Clin., March. ³⁸ Mont. Med. Jour., March. ³⁹ Med. Times, March. ⁴⁰ Bost. M. and S. Jour., March

25th. ⁴¹ Cinc. Lanc. Clin., March 27th. ⁴² Pitts. Med. Rev., March. ⁴³ Jour. Am. Med. Assn., March 20th. ⁴⁴ Char. Med. Jour., March. ⁴⁵ Chic. Med. Recorder, March. ⁴⁶ Brist. Med. Chir. Jour., March. ⁴⁷ Jour. de Méd. de Paris, March 7th. ⁴⁸ Arch. de Gyn. et de Toc., Sept., Oct., Nov., Dec., 1896. ⁴⁹ Brit. Gyn. Jour., Feb. ⁵⁰ Arch. Prov. de Chir., Feb., March. ⁵¹ Mont. Med. Jour., April. ⁵² Cent. für Gyn., No. 9. ⁵³ Berl. Klin. Woch., No. 9. ⁵⁴ Zeits. für Hygiene und Infect. Krankh., Bd. xxxiii., H. 3. ⁵⁵ Münch. Med. Woch., No. 7. ⁵⁶ Virchow's Arch., Bd. cxlvii., H. 1. ⁵⁷ Sosvrem Klinika, Nos. 1-7. ⁵⁸ Russ. Zeits. für Geb. u. Gyn., No. 9. ⁵⁹ N. Y. Med. Jour., Mar. 20th. ⁶⁰ Ann. of Gyn. and Ped., April.

DISEASES OF CHILDREN.

Alcohol in Childhood.—J. Comby ¹ considers alcohol injurious to healthy children. In disease it is indicated in acute febrile diseases accompanied by adynamia, a tendency to cardiac collapse and to nervous depression. It is contraindicated in chronic diseases, in diseases of the nervous system, in nephritis and all forms of albuminuria, in chronic dyspepsia, dilatation of the stomach, entero-colitis, acute dysentery, and disorders of the liver; also in acute articular rheumatism, in arthritic diseases, vesicular, pustular, or papular dermatoses, and in acute endo- and pericarditis. It must not be given in conditions of anemia, languor, and weakness; and this applies to the various alcoholic tonics advertised so generally. To avoid all irritating action alcohol should be prescribed for children in a syrup of some kind or in milk, etc. Even wines should not be given undiluted.

Arsenical Neuritis.—Alfred Stengel ² reports a case in which this condition followed the administration of arsenic for chorea. The drug was given, in the form of Fowler's solution, for several weeks, beginning with three drops three times a day, the dose being gradually increased to ten drops. As soon as toxic symptoms appeared the arsenic was discontinued. Nevertheless the nervous complication occurred, coming on about one month later.

Atrophic Kidneys in Childhood.—Bernhard ³ reports three cases, one occurring in a tubercular boy and another in a child who had had pyelitis. There was no cardiac hypertrophy, and albumin was not constantly present.

Bacillus of Friedlaender.—W. C. C. Pakes ⁴ reports five cases in which this micro-organism appeared in pharyngitis and tonsillitis.

Bromoform Poisoning.—Rembe ⁵ reports the case of a boy 7 years old who recovered.

Cerebral Injury.—S. W. S. Toms ² reports a case in which serious cerebral injury followed forceps delivery and resulted in imbecility.

Child Education.—In referring to the part of the medical man in child education W. H. Prescott ⁶ indorses the view that the training of a child should begin "two years before it is born," and says that one part of a physician's duty is to make parents understand that they should have healthy bodies and

minds in order to have healthy, well-trained children. After the birth of a child its training should begin immediately; it should be fed regularly, and should never be disturbed between feelings except for necessary attentions. Children are made to become little actors, and their minds are often kept at a high tension from morning to night so that fond relatives may gratify their love and their desire for emotional excitement. All this forces into prominence the emotions and stirs up the nervous temperament, besides interfering with the natural sleep. At a later period an hour or so a day can be given to healthy exercise in a comfortable room, without clothes. One of the dangers to the health of children is overdressing. Walter Channing⁶ believes that the physical side of education receives comparatively little attention and is little understood. He believes, also, that "special classes" are necessary for delicate and peculiarly organized children. Elizabeth T. Gray⁷ makes a plea for medical gymnastics as a part of gymnastic training.

Congenital Tumors of the Sacro-coccygeal Region form the subject of a paper by M. E. Kirmisson.⁴⁷ They are more frequent in girls than in boys, they attain a large size and are usually cystic, histologically complex fibromata, lipomata, myxomata, serous and dermoid cysts, etc. The author enters into the theories of their origin. Extirpation is the only treatment.

Cleft Palate, Early Operations for the Closure of.—Truman W. Brophy⁷ believes that when hare-lip complicates cleft palate the palate should be operated upon first, for the following reasons: 1. The fissure of the lip enables the operator to gain a little more room in which to work. 2. The closure of the cleft through the alveolar process may be more surely accomplished when fully exposed to view through the divided lip. The operation should be done in early infancy, because the bones are then soft and will readily yield. The tissues unite kindly, and the shock following the operation is not so great if performed within the first month. After the operation the child will be better nourished; many infants with this deformity die of inanition. If the operation is performed in early infancy the muscles of the palate will be brought into action and developed, whereas if the muscles are not thus put into use they will atrophy. Other reasons why we should operate early are that the parts will then develop well, and the child will find later on that he can speak as other children do, and will not acquire the habit of articulating through the nasal passage; the nasal accent, when once acquired, cannot be easily corrected. The operation upon the hard palate can also be more easily and successfully accomplished before the calcification of the bone is far advanced and before the eruption of the teeth.

Development of the Child as Modified by the Condition of the Eyes.—W. F. Southard⁸ states that before the fifth year a child's perceptive powers have begun to unfold. His former uncontrolled inquisitiveness is gradually giving place

to acquisitiveness. During this period of receptivity the eyes should be capable of seeing most accurately, for we know that the child may not only suffer physically and mentally, but that his whole character may be greatly modified, or even changed, by the condition of the eyes. Of all persons the educator should clearly understand that the child's eyes should be optically accurate at the very commencement of his educational career. No conclusion is more justifiable than that accuracy of observation and distinctness of vision are inseparable and the first in importance. From 200,000 or more examinations of children's eyes the following propositions may be formulated: 1. Myopia is an over-development of the eye, usually beginning with the child's first use of the eyes at the near point. 2. It is found in increasing percentage, rising steadily, with the advancement of school work, and is of most infrequent occurrence where the least work at the near point is required. 3. According to the degree of myopia the mental development of the child will be more or less retarded. Children are not born myopic, but the tendency to it is inherited in a vast proportion of the cases, so that that which is overwork for one may be only play for the second. Astigmatics are frequently subject to certain forms of headache of a neuralgic type. Most hyperopic children, unless the hyperopia be great, have normal vision, and this prevents the ordinary observer from recognizing the relationship which may exist between the many peculiar phenomena witnessed in children and the state of their eyes.

Dexiocardia, Congenital.—Vehsmeyer⁹ reports a case in a boy 16 years old, and illustrates by means of a Röntgen-ray photograph. Only 20 clinical observations of the condition have been made, of which 5 were females and 15 males. In addition 11 specimens were observed anatomically only.

Dilatation of the Large Intestine, Idiopathic, So-called.—In an article upon this subject C. F. Martin¹⁰ writes that the condition has proved fatal in every case reported. In nearly every instance the first symptom was a more or less persistent constipation or other "trouble with the bowels," commencing within the first few days of life. Following upon this comes, either very early or within a few years, a noticeable distension of the abdomen. Pain occurs in most cases, and occasionally there are vomiting and intermittent liquid stools. There is often progressive emaciation, though sometimes death is very sudden, the autopsy revealing no satisfactory reason therefor. The malady is usually fatal at an early age, though some patients enjoy moderate health for years. It is of prime importance to distinguish between purely congenital cases and those which have been acquired at a later date, for dilatation of the colon, as a result of koprostasis, is by no means uncommon. So far as congenital cases are concerned, it is not an infrequent circumstance that antenatal stenosis or an imperforate condition of the anus will lead to dilatation of the colon. Cases of this kind may show equally well a series of symptoms and morbid anatomy resembling those seen in the apparently idio-

pathic congenital dilatations. There have been numerous theories as to the cause, but none of them is satisfactory. Some of them are as follows: An unduly lax meso-colon, by means of which there arise kinks in the bowel; immoderate or anomalous development of the tissues of the sigmoid flexure or colon; undue length of the sigmoid flexure in early infancy, combined with habitual constipation; defective innervation of the intestinal muscles; spasm of the rectum; adhesions; colitis and hence weakened intestinal wall; and contracted meso-colon at one place.

Diphtheria.—Prof. Shuttleworth,¹⁰ in discussing the bacteriological diagnosis of diphtheria, states that he is convinced of the advisability of examining the exudate before making a culture, as reliable conclusions may often be arrived at in a few minutes instead of waiting twenty-four hours. The author found that positive evidence was given in 54 per cent of the exudates, while 20 per cent were marked suspicious and 26 per cent negative. Observations as to the size of the bacilli found in the cultures show that this feature affords little on which to base a prognosis. The position of the so-called pseudo-bacillus is not yet clearly defined; for hospital purposes, however, it is proper to characterize as diphtheria all cases in which a bacillus exhibiting the peculiarities pertaining to the Klebs-Löffler micro-organism is found in the exudate or revealed by the cultures. The following table shows the kind of pathological organisms found in 559 hospital and outside cases:

	Hospital Cases.	Private Cases.
Bacillus diphtheriæ	56 per cent.	40 per cent.
“ “ and streptococci....	16 “ “	12 “ “
“ “ “ staphylococci ..	7 “ “	2 “ “
“ “ with streptococci and staphylococci.....	8 “ “	1 “ “
Streptococci only	2 “ “	26 “ “
Staphylococci only.....	6 “ “	2 “ “
Streptococci and staphylococci.....	5 “ “	11 “ “
Other organisms.....	0 “ “	3 “ “
Sterile.....	0 “ “	1 “ “

The following table comprises a classification of the cases, based on the clinical records, taken with the bacteriological observations:

	Mild.		Severe.		Very Severe.		Fatal.		Total.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Bacillus diph	102	47.9	30	14.0	45	12.1	36	16.9	213	56
“ “ and strep....	35	50.7	9	13.0	13	17.9	12	17.4	69	18
“ “ “ staph....	9	32.1	4	14.3	9	32.1	6	21.4	28	7
“ “ sta. and str.	12	60.0	4	20.0	3	15.0	1	5.0	20	6
Staphylococci.....	6	100.0	“	“	“	“	“	“	6	2
Streptococci	23	100.0	“	“	“	“	“	“	23	6
Staph and strep	18	100.0	“	“	“	“	“	“	18	5

William H. Welch¹¹ states that the bacteriological diagnosis

of diphtheria is not to be regarded as intended to supplant the clinical diagnosis, or in any sense as antagonistic to the clinical method. It is simply a valuable additional aid in diagnosis, in many cases simply confirmatory of a diagnosis reasonably certain upon purely clinical grounds, and in doubtful cases of decisive importance. No readjustment of the views which have been reached by the anatomical and clinical study of the disease is necessary. Statements based upon the examination of large numbers of suspected cases of diphtheria, to the effect that not more than 60 to 75 per cent of the cases are genuine bacillar diphtheria, are in a measure misleading, and it is not to be understood that all of these suspected cases relate to primary pseudo-membranous inflammations, about the nature of which the practitioner would not be in doubt upon the clinical grounds. It sometimes requires repeated painstaking examinations to detect the diphtheritic bacilli in diphtheritic exudates. Not a few of the pseudo-membranous inflammations of the throat secondary to scarlet fever and other acute infectious diseases are due to other organisms than the Klebs-Löffler bacillus, and are therefore not true diphtheria. The view that every throat harboring the Klebs-Löffler bacillus should be regarded as affected with diphtheria is ridiculous. The bacillus must not only be present, but it must be doing harm by unfolding its pathogenic activities—that is, by setting up inflammation. The whole point, however, is that this inflammation may be mild, without membrane, as well as severe, necrotic, with membrane; and the mild, non-membranous inflammations are just as truly diphtheritic as are the membranous types. The recognition of the mild cases, which can be positively diagnosed only by bacteriological examination, is of no little importance. There are not a few clinicians who advocate the doctrine that diphtheria may manifest itself in the form of mild non-membranous inflammations long before the bacteriological era. In a general review of diphtheria and its treatment J. S. Miller¹² fully indorses the use of antitoxin in conjunction with other remedies. J. Grancher¹³ contributes an article in which he recapitulates the history of bacteriology in diphtheria. Clinical diagnosis has its difficulties and drawbacks, but he shows that bacteriological diagnosis is not infallible either, there being a decided difference of opinion among scientists as to the exact significance of the long and the short bacilli found in anginas, some holding that the long only are diphtheritic, others that both are of equal importance. City and hospital physicians can easily avail themselves of the laboratory for assistance in diagnosis. Not so the country physician, who must be guided chiefly by the clinical symptoms and must inject serum when the symptoms seem to demand it. This is a good rule for all physicians to follow. Be bacteriologists if you can, says Grancher, but above all be clinicians. Use the microscope and cultures if you will, but learn how to do without them, and do not permit the laboratory to prevent you from learning how to recognize a true angina and a false

membrane. Grancher agrees with Lasègne that a careful study of the patient and of the reactions of the organism is more important than all else in the treatment of disease. Paul Simon¹⁴ holds with Variot and others that in addition to *true diphtheria*, which is both clinical and bacteriological, there are cases of purely bacteriological diphtheritic anginas which are benign, catarrhal, or accompanied by a pultaceous exudate, *not contagious*, and curable without the use of serum. The mere finding of Löffler's bacillus, therefore, while valuable to the clinician, is not an infallible guide in the diagnosis of diphtheria. Serum should be administered only when the clinical and bacteriological data agree. The author illustrates his views by the report of several cases. Bokay¹⁵ gives the results of serum therapy in diphtheria in the "Stefanie" Children's Hospital of Budapest, and the statistics in detail of 402 cases. He concludes that antidiphtheritic serum has given excellent results not only in the treatment but in the prophylaxis of the disease. Robert W. Greenleaf¹⁶ has an article on the value of prompt co-operation with the municipal authorities for the prevention of the spread of diphtheria. Delano Ames¹⁷ emphasizes the importance of the medical inspection of schools for the prevention of diphtheria. He believes that every sore throat in a child attending school should be looked upon as suspicious until proved to be to the contrary; that a child attacked with diphtheria should be isolated at home and its school belongings destroyed; that other children in the same house should be kept from school; that the patient and other children in the same house should not be allowed to return until bacteria can no longer be found in their throats; and that there should be a sanitary inspector for each school. William Royal Stokes¹⁸ has an article on bacteriological demonstrations of diphtheria. John M. Bertolet¹⁹ gives a résumé of the treatment of diphtheria. In an article upon the present status of the serum treatment of this disease William Cheatham²⁰ states that antitoxin is not a cure-all, but that it is the best treatment that has yet been offered. He thinks that the dose has not yet been definitely determined.

Ear Diseases.—Wendell C. Phillips⁷ gives a study of 300 cases. He emphasizes the importance of internal medication by means of tonics and general building-up treatment. Attention was also given to the condition of the teeth, and all cases of foul or decayed teeth referred to a dentist.

Encephalitis, Diffuse, in the Child.—Reymond¹⁵ reviews the literature and reports a fatal case in a female baby 17 months old. At the autopsy the staphylococcus albus and a non-identified pathogenic bacillus were found. Microscopical examination of the brain showed congestion, atrophy of the nerve cells, hypertrophy of neuroglia and connective tissue. Differential diagnosis and treatment are also considered.

Encephalocele.—A. P. Brown¹⁹ reports a case in which there was peculiar brain action—that is, the child could see and hear, but never cried.

Exomphalus.—Ardouin and Kirmisson²⁰ describe a fetus which presented the following deformities: exomphalus, congenital scoliosis, lumbo-sacral spina bifida, double congenital luxation of the thighs, double talipes, absence of the bladder and genital organs.

Feeble-minded Children.—Concerning the treatment of these patients in institutions, J. Moorhead Murdoch²¹ lays stress upon hygienic conditions, the application of the principles of medicine to existing physical deformities, the correction of malformations by surgical procedure and gymnastic exercises, and the education and training of the moral and intellectual faculties.

Friedreich's Disease.—Langford Symes²² presents a description of this disease, which, he says, is not to be found in any book. The affection is one of great peculiarity and obscurity, and inevitably proves fatal. It is a slowly progressing ataxy, chiefly attacking children, and begins in the legs. The disease is a peculiar variety of lateral sclerosis. Its true origin is unknown, but it seems to be hereditary. The chief symptoms are as follows: a staggering gait, walking with a wide base, and aggravated by closing the eyes; loss of knee jerks; nystagmus or erroneous projection; tremor and jerky unsteadiness of the head, neck, and arms; lateral curvature of the spine; and slow, hesitating, thick, or indistinct speech. Then the clear mind, perfect senses, normal sensation, pes cavus, head bent forward, weakness of certain muscles, and choreiform movements or vertigo, complete the picture. There is, as a rule, no anesthesia, analgesia, optic neuritis, ocular paralysis, Argyll-Robertson pupil, trophic changes, pains or crises, nor affection of the sphincters.

Gastro-intestinal Hemorrhages in the Newly-born.—M. Hermary²³ states that the symptoms of hematemesis or melena, appearing within the first ten days after birth, can be clinically and therapeutically divided into three groups: 1. False melena, in which the blood is derived from lesions of the breast or from the mother's genital tract, and regurgitated by the infant. 2. True melena occurring in infants suffering from visceral malformations, or injured during labor, or affected with hemophilia or hereditary syphilis. 3. True melena appearing without apparent cause, on the first, second, or third day, in a well-formed child who is apparently in good health. To account for this phenomenon a variety of theories have been advanced; two of these take it for granted that the hemorrhage is primary and derived from a local lesion of the digestive tract. It is supposed to be due to an intoxication, an absorption with the milk of some irritant, or to intense congestion of the intestines from the ingestion of too large an amount of milk. Rindfleisch holds that the veins of the capillary network of the intestines are compressed by the contraction of the muscular tunic, and that premature alimentation, which increases the arterial circulation, also increases intestinal contractions and produces venous stasis. Loranchet believes that chilling after birth

induces a turgescence of the circulation. Other authors hold the view that syphilis is the cause of all these hemorrhages. The most generally received theory at the present day is that the grave and even the slight hemorrhages which cannot be otherwise explained are due to infection. According to Pinard artificial feeding is a chief cause of this infection. In severe cases the infant should be rubbed with tepid alcohol, and then enveloped in heated cotton batting and surrounded with hot-water bags. A few drops of laudanum may be given to quiet great restlessness. Every two hours $2\frac{1}{2}$ drachms of mother's milk mixed with pounded ice may be given by the spoon or by gavage. From a few drops to $1\frac{1}{4}$ to $2\frac{1}{2}$ drachms of alcohol or Hoffmann's anodyne may be added to the milk during twenty-four hours, if the patient is weak. Ergotin (3 to 8 grains) or the extract of rhatany (30 to 60 grains) may be given every quarter of an hour. Inhalations of oxygen must be resorted to in case of collapse. Dry cups and sinapisms may be applied to the chest if the respiration becomes weak or irregular.

Gonorrheal Ophthalmia.—Frank Trester Smith²¹ reports a case treated with argonin. The remedy seemed to be a safe one, less irritating than nitrate of silver, and had a decided effect on the development and discharge of the gonococci.

Hemophilia.—J. Clifford Perry²⁵ reports a case treated with the chloride of calcium with beneficial results. The drug was given in 1.30 gramme doses every four hours during the first day, every six hours during the second day, and three times on the third when its use was discontinued. H. F. Vickery¹⁶ has a review of this subject with the reports of some cases. He finds that in the transmission of the disorder the females usually escape, there being but one female, it is said, to eleven male sufferers; but the women transmit the disease to their sons. If a male bleeder lives long enough to beget boys and girls it is probable that none of them will be bleeders, nor the sons' sons, but the daughters' sons will exhibit the tendency. With regard to the treatment, we should guard against accidents, and abstain, if possible, from operative interference. For the actual bleeding compression should be tried, combined with absolute bodily rest. It should be remembered, however, that excessive pressure is peculiarly apt to cause a slough in hemophiliacs. Perchloride of iron has proved itself one of the best local and internal styptics. The actual cautery has sometimes been of service. Antipyrin and iodoform are good local remedies.

Hernia.—Lannelongue²⁶ describes the technique of the treatment of congenital hernia by means of the injection of chloride of zinc, which has given excellent results in several cases.

Hysterical Affections in Childhood.—Steiner¹⁵ reports 7 cases of different types, each in detail. In the second part of his article he has tabulated all the cases of hysteria in childhood published up to the present time.

Infantile Spinal Paralysis, Acute.—Frank E. Peckham² calls attention to the clinical picture of this disease and to the

deformities which may result. He presents the reports of a number of cases, with numerous photographic illustrations.

Klebs-Loeffler Bacillus in Chronic Nasal Discharges.—Eugene Larue Vansant²⁷ presents a report on the results of a bacteriologic investigation of the nasal mucus in 100 cases of chronic nasal discharge, with special reference to the presence of the Klebs-Löffler bacillus. The bacillus was found in no less than 30 of the cultures, representing the discharges found in 26 different patients. In 4 additional cultures from 3 patients organisms closely resembling the diphtheria bacilli were present. In 58 cultures staphylococci were found. The great majority of the cultures contained many diverse forms of organisms, such as bacilli, cocci, diplococci, etc.

Little's Disease.—Weiss²⁸ reports a case in a 7-year-old boy of congenital spastic paralysis, giving all the symptoms in detail.

Melena Neonatorum.—Chrzanowski²⁹ reports two fatal cases with autopsies. Cultures from the blood during life remained sterile; after death the staphylococcus pyogenes aureus was cultivated from the heart's blood and viscera; fatty changes were found in the liver and kidneys. The literature of the subject, as bearing upon the etiology of these cases, is referred to. James Wallace Smuck³⁰ reports 2 cases. In looking over the literature he finds that many different opinions exist as to the cause, some of the supposed etiological agencies being ulcers of the stomach and duodenum, hereditary or acquired hemophilia, premature delivery, and sepsis.

Meningo-encephalitis, Chronic, or Meningo-encephalitic Idiocy.—Bourneville and Mettetal³¹ report a case of great interest, the chief points being the following: 1. In the history we find that the father is subject to migraines, one aunt and two uncles on the paternal side are deaf-mutes, and one aunt a prostitute. On the maternal side the mother has chorea, myopia, and suffers from migraines, the grandfather is alcoholic, and a great-grandfather died insane. A brother of the patient died of meningitis. 2. The mother's migraines disappeared entirely during pregnancy and lactation. 3. Up to the age of 18 months the child was apparently normal. At that time she suffered from convulsions due to meningitis. At the age of 7 she was sent to school and learned, somewhat slowly, to read, write, count, etc. At 11 years she again had convulsions, due probably to an exacerbation of the old trouble, followed by temporary hemiplegia of the right side; three months later the same affection followed by transitory right hemiplegia and aphasia. The intellectual and moral faculties from that time became impaired and the child had perverted instincts, such as kleptomania and pyromania. The condition became progressively worse, the mind becoming gradually feebler, muscular strength declining, and insanity, contracture of the limbs ushered in a fatal cachexia. At the autopsy the cranium, dura mater, and pia mater were found to be thickened. A marked meningo-encephalitis was found, extending throughout the hemispheres

with the exception of the frontal and ascending parietal lobes, and involving the whole thickness of the gray substance, which detached itself with the pia mater, leaving the white substance of the convolutions exposed. These lesions were macroscopically similar to those found in the general paralysis of adults in its latest stage.

Modified Milk in Health and Disease.—In a contribution to this subject T. M. Rotch³² writes that, in contradistinction to the claim that a given percentage should be given at a given age, analyses show that we must study the proteid digestion of each infant and discover the idiosyncrasies of the especial stomach. The changes in percentage may be made by home modification, but not so well as by the laboratory methods, for an unvarying cream and milk cannot be obtained even from the most reliable dairies. The author has found that he is more successful in managing a difficult proteid digestion, not by predigesting the proteids, but by reducing them first to a minimum, and then gradually, as the proteid digestion becomes improved from not being overtaxed, increasing the proteid percentage until the necessary amount is attained. He begins with the proteids 0.25 for all ages, increasing up to 1.0 to 1.5 for infants and 2.0 to 3.0 for children. The most successful treatment for diarrheal diseases has been with a very low percentage of all the elements of the milk, the average being: fat, 1.5 to 2.5; sugar, 4.5 to 5.0; proteids, 0.25 to 0.67. No cereal or artificial food added to the milk diminishes the density or size of the curd. Many premature infants have died from being put to the breasts of the mother, because the human mamma has not been made to modify its milk constituents into low percentages. In this class of cases there seems to be no question that the careful modification of cow's milk, by dealing with low percentages, gives the premature infant a far better chance for life.

Mumps.—James L. Minor³³ discusses aural complications with this disease, and reports 8 cases.

Myositis Scarlatinosa.—Brück²⁹ reports 3 cases, all of which recovered.

Myxedematous Idiocy treated by the Ingestion of the Thyroid Gland of the Sheep.—A year ago Bourneville³⁴ reported 2 cases of myxedematous idiocy. He now reports their condition after a year of treatment with the thyroid gland of the sheep. The first case, a child born in December, 1892, when seen before treatment, had never walked alone, was able to speak two words only, recognized a few persons only, was slow in all her movements, constipated, and drooled continually. Her cheeks, eyelids, neck, and abdomen were thickened, her tongue thick and protruding. Palpation failed to reveal the presence of a thyroid gland. The sheep's gland was administered in two periods: from January 18th to June 1st, and then from the 1st to the 31st of July—166 days in all. The child was given a daily dose of a half-lobe, or about 15 grains—in all 9 drachms. The second period extended from October 3d to

December 31st, during which time 15 grains were taken daily for 19 days, and 20 grains for 20 days, or a total of 7 drachms. The gland, freed from fat, was finely subdivided and given in bouillon. Nutrition was markedly affected; the fatty infiltration was diminished, the lips, tongue, and eyelids becoming smaller. Dyspnea and cyanosis disappeared, the bowels became regular, the skin nearly normal, and growth was greatly increased— $4\frac{1}{2}$ inches altogether. The size of the head increased, and the fontanelles, which had been persistent, became much smaller. Dentition was completed. The voice, which had been a mere cry, gained 10 notes. The physiognomy has become more expressive. The child, previously so inert and obtuse, is gay, affectionate, and observing. Her habits are now cleanly. She walks, holding on to one finger of her mother's hand.

The second case, a child born in July, 1891, when seen in July, 1895, showed all the signs of idiocy with pachydermatous cachexia. There was dwarfishness, absence of the thyroid gland, etc. The remedy was given from January 18th, 1896, to May 31st; suspended, and then given again from the 1st to the 31st of July; suspended until the 3d of October, and resumed up to the 23d of January. The improvement is very marked in growth, development of the head, dentition, and voice. Morally and mentally there is great progress. The child is no longer subject to fits of anger. She walks normally, is active, and is, although slowly, acquiring a vocabulary. The author believes that the results obtained in these cases speak strongly in favor of thyroid medication.

Ophthalmia Neonatorum.—A. E. Adams³⁵ reports 7 cases showing the importance of preventive measures and prompt treatment.

Osteopsathyrosis, Idiopathic (Fragilitas Ossium), in Infancy and Childhood.—J. P. Crozer³⁶ gives the reports of 67 cases. In reviewing them the influence of heredity is seen to be very striking, inasmuch as direct inheritance, or at least a family tendency, was shown in 18 of the reports. In the matter of the etiological influence of sex the accounts are not quite satisfactory, but as far as they go they tend to prove a tendency to a transmission not only through males but to males. As to age, the affection appears usually in early life. The amount of force necessary to produce fracture was nearly always slight, and sometimes remarkably so. The influence of other diseases in producing idiopathic osteopsathyrosis is problematical. The fact that a parent was or is syphilitic is not sufficient to explain the fragility, nor is the coexistence or previous existence of rickets. Rachitis is more closely allied to osteomalacia than to this disease; when, therefore, we find an excessive degree of fragility in a case of rickets, it is rather evidence that rickets and osteopsathyrosis may be combined in the same individual—not a proof that they are at all identical, or even necessarily related. Chemical and microscopical examinations of the bone which have been made in this disease

are contradictory in many cases; no change was present which accounted in the slightest degree for the fragility. An interesting feature of the affection is that in nearly all cases union of the broken bones was prompt. The position of the fracture is entirely independent of the relation of the diaphysis and epiphysis. When refracture occurred it sometimes happened at the seat of an old fracture, but oftener the bones seemed to have broken irrespective of the position of the former injury. In making a diagnosis we have first to determine the absence of other conditions to which fragilitas may be secondary. The exclusion of syphilis and nervous diseases is important. There should be no difficulty in distinguishing it from rickets. It is questionable if true osteomalacia ever occurs at a very early age. The absence of local lesions, such as osteitis, caries, tuberculous disease of the bone, tumors of the bone, etc., is also to be determined. The prognosis, as a rule, is very unfavorable. The duration of life does not seem to be materially affected by the disease, but the tendency to fracture, once established, is apt to continue unabated. The treatment is so far experimental. Tonics, hygienic measures, and protection of the limbs from fracture are the indications, with the hope that as time passes the fragility may be outgrown.

Otitis Media.—H. Seeker Walker³⁷ reports a case complicated with cerebellar abscess, in which an operation was followed by recovery.

Pemphigus Vulgaris.—Vernon Robins¹⁸ reports a case in a girl 8 years of age. The disease lasted twenty-three days in December, and a relapse occurred on February 2d. Since then no new blebs have appeared. In the treatment Fowler's solution was given in three-drop doses and gradually increased to seven drops three times a day.

Pericranial Cellulitis and Cephalhematoma.—Edward Nicholas Liell² reports a case consequent upon the use of the high forceps in a moderately contracted pelvis.

Peritonitis with Pneumococci.—F. Brun³⁸ reports 3 cases to illustrate his theory that in childhood this affection is distinguished by certain symptoms and by a form of development which enable it to be readily diagnosed from peritonitis of other origin. It is much more frequent in girls than in boys; the lesions are usually localized in the subumbilical portion of the abdomen; there is a tendency to rapid formation of fistula of the umbilicus. Out of 14 cases reported Brun finds that there are 3 deaths to 11 recoveries. Ten were cured by operation, 1 by spontaneous rupture at the umbilicus and into the vagina. He himself obtained 4 recoveries out of 5 cases operated upon.

Pertussis.—Naegeli-Akerblom³⁹ has treated 80 cases with coccionella (combined with ammonium carbonate and syrup of orange), the cough ceasing entirely in six to eight days. Richter⁴⁰ considers that contagion is modified by the age of the patient, the stage of the disease, and the closeness of the contact. Special predilection exists during the age of 1 to 3

years, and second attacks have undoubtedly been observed. In all cases examined (147) Richter found the bacterium described by him as *diplococcus tussis convulsivæ* present in the sputum. Bromoform is strongly recommended in the treatment, and should be given in sufficiently large and long-continued doses.

Precocious Maturity.—Wladimiroff²⁹ reports a case in a 6½-year-old girl. There were no psychic disturbances and no nervous symptoms. Charles W. Townsend¹⁶ gives a full report of a case in which enlargement of the breasts appeared at the age of 3 months, and regular menstruation began at 6 months.

Progressive Muscular Atrophy in the Young.—William L. Stowell⁴¹ reports some cases with photographs of the patients, and gives a general review of the subject.

Prolapsus Ani in Childhood, Treatment of.—Schmey³⁹ has observed that every case of prolapsus ani seen by him had rickets, and therefore he has instituted antirachitic (phosphorus) treatment with brilliant results, no case failing to be cured.

Pulmonary Tuberculosis, Etiology of.—In an exhaustive article W. Freudenthal⁷ dwells upon the connection between post-nasal catarrh and tuberculosis. The nasopharynx has the undoubted task of entrapping foreign bodies, including bacteria. Accumulations of glandular tissue in this cavity with surfaces provided with crypts constitute a favorable condition for the settling and developing of bacteria. In post-nasal catarrh we also find a pathological change or absence of the ciliated epithelium, and a tenacious, adhesive, and stagnating mucus—additional conditions favoring the development of micro-organisms. Examinations by different observers have revealed the presence of various forms of bacteria in this locality, and Strauss has actually demonstrated the presence of tubercular bacilli in the nose of healthy persons who had stayed in rooms inhabited by tuberculous patients. Dieulafoy has shown that in one-third of the cases with adenoid growths and of hypertrophied tonsils operated upon by him, the children being otherwise healthy, tuberculosis was also present. In patients who had died of phthisis E. Fränkel found tuberculosis retro-nasi in one-fifth and Dmochowski in one-third of all cases. The secretion containing the bacilli is removed from the pharynx, larynx, and perhaps from the deeper parts, before the micro-organisms have had time to settle, but we cannot easily remove the mucus from the tonsil and the retropharynx. It is in the retropharynx, however, that we find the most favorable conditions for the development of the germs. The air stagnates there, especially in the superficial breathing of those leading sedentary lives. The ciliated epithelia, which are of so much importance for the protection of the tissues, having become more or less destroyed, the tubercular bacillus has no difficulty in getting into the proper lymph tissue. It is the opinion of Dmochowski that the tubercular bacilli can infect

secondarily other organs when they have once penetrated the mucous membrane of the retropharynx. Ponfick explains the further progress by saying that through the penetration of the bacilli into the respiratory passages, which we must consider as an indirect one, the mucosa of the main channels, as well as the accessory ones; is stimulated to reaction. In the beginning this presents itself merely as an "indifferent catarrh." It is evident that the organism frequently reacts against the invasion of the tubercular bacilli, hence the glandular swellings so common in children. It seems plausible to the author that the hypertrophy of the lymphoid tissue at the vault of the pharynx is nothing more than the expression of this reactionary inflammation.

Pyogenic Brain Disease.—Albert Rufus Baker⁷ presents a number of cases. So far as possible the infective area was cured by curetting and draining. It seems to the author that the boldness with which the general surgeon opens the cerebral cavity in his efforts to discover and drain cerebral abscesses, and the perfunctory way in which he passes over the source of infection in the middle ear, is sometimes a dangerous practice.

Sarcomatosis, Congenital, of the Skin.—Neuhauser²⁹ reports the case of a 2-months-old child with multiple nodules all over the skin. At the autopsy the original tumor was found to be a congenital sarcoma of the skin of left leg, with metastatic deposits in several muscles and lymph nodes, also in the heart and kidney. The literature is reviewed.

Scarlet Fever.—Frederick Dittmar and John Brownlee⁴² present the reports of a number of undefined cases certified as scarlet fever.

Scarlet Fever with Diphtheria, without Fever.—Varnali²³ reports a case which occurred in a 3½-year-old boy and resulted in recovery.

Spastic Paralysis in Children.—Samuel Ketch⁴³ has an article on the general, mechanical, and operative treatment of this disease.

Stammering.—In treating this disorder Philip Kavanagh⁴⁴ writes that kindness is the best auxiliary we possess. Rough usage or ludicrous remarks augment instead of lessening the existing cause—nervousness. The patient should first be advised to master those words which cause him to come to grief; then to read aloud for two to three hours daily until he has gained confidence in himself; and, finally, to read aloud in the presence of others. When once the patient has gained confidence in himself his greatest enemy is overcome.

Streptococcus-Croup of the Trachea in Septic Scarlatina.—Pospischill¹⁵ reviews the literature and reports such a case, being the first to be reported as occurring during scarlet fever, and it proved fatal. Pseudo-diphtheria bacilli were present in the nose during life and were found in the tracheal exudate after death. They were proven to be not virulent. Streptococci were present in the trachea and in the blood.

Syphilis, Congenital.—H. Gideon Wells²⁴ reports a case

complicated with a mixed infection with the staphylococcus and streptococcus pyogenes. Hochsinger²⁸ reports the cases of two children whom he had seen as nurslings when they had congenital syphilis, and again when they were 8 and 10 years old respectively, when they had marked syphilitic lesions (keratitis, etc.) They had been seen only once as infants, after which they had had no treatment of any kind. Hochsinger has reported 63 cases of congenital syphilis, which, having been treated and kept in view four years, showed few or no lesions later, some being entirely well six to fifteen years after treatment. One of the above cases was very severe at 6 weeks of age, and its spontaneous improvement is therefore interesting.

Hereditary Syphilis and Exostoses.—Marcel Labbé²⁹ reports and carefully analyzes three cases which sustain the view that exostoses, contrary to the usual belief, may be due to hereditary syphilis. The age of the patients was not that at which osteogenetic exostoses usually appear. In two of the cases the growths disappeared under iodine and mercury treatment. Other bony lesions of specific origin were present, such as osteophytes, swelling of the inferior end of the humerus, and periostosis of the superior extremity of the ulna. In one of the cases the structure of the exostoses in relation with the epiphyseal cartilage and the periosteum, and its continuity with the osteophytes, proved that it was a modification of the process of ossification. All these conditions, according to Labbé, confirm his standpoint in regard to the origin of the exostoses.

Talipes.—Ch. Rémy⁴⁶ reports the result of an examination by the X-ray of a foot upon which he had operated six years previously for talipes by removing the astragalus. The condition revealed was fairly satisfactory and fully explained by an accompanying illustration.

Thrombosis of the Petrosal, Cavernous, and Circular Sinuses.—J. W. Stirling⁷ reports a case occurring in scarlet fever, due to acute suppurative otitis media. Death occurred.

Torticollis.—L. Hendrix,⁴⁶ treating of the purely muscular affection, thinks that in young children orthopedic treatment should be all-sufficient, such as massage and passive movements. In older children the disease, when slight, causes no apparent alteration of the muscle, but when severe transforms it into a fibrous cord from which all muscular tissue has disappeared, and causes secondary alterations of other parts of the neck, and even of the bony tissue, leading in cases of long standing to cervical scoliosis and marked deformity of the cranium and face. Mikulicz, following Petersen, believes that congenital torticollis is never due to traumatism during labor, but dates from intrauterine life and is due to a special predisposition to some form of degeneration. Mikulicz' operation of total extirpation of the muscle is indorsed by the author, who has practised it with success, and is simple of performance and in the after-treatment.

Tuberculosis, Hereditary, Present Status of the Subject of.—Szegö²⁹ has written a most interesting and comprehensive

article, from which he concludes that the inheritance of tuberculosis is either parasitical or dispositional (perhaps toxic); that heredity does not exclude contagion. It is difficult to decide which is the more frequent mode of heredity, whether infection of the sperm or ovum, or through the placenta. Lesions in the lungs, intestines, and glands about the nose and mouth point rather to a contagious origin. Lesions in the brain, bones, joints, and abdominal viscera point to a congenital origin. The congenital germ of tuberculosis may remain latent for some time, and starts up only after weakening of the organism.

Typhoid Fever.—Regarding the treatment of this disease F. Gordon Morrill² writes that there can be no doubt of the necessity of adequate feeding, and that milk is the safest and most convenient form of nourishment. It should be given every two or three hours in from three- to four-ounce portions (less to very young children). It is only necessary to dilute with lime water or Vichy during attacks of nausea or vomiting. Calomel should be given in the early stage if there is constipation. Other indications are met in the usual way by the author.

REFERENCES.

- ¹ La Méd. mod., March 3d. ² Arch. Ped., March. ³ Münch. Med. Woch., vol. xlv., No. 9. ⁴ Brit. Med. Jour., March 20th. ⁵ Der Kinderarzt, vol. viii., No. 3. ⁶ Ann. of Gyn. and Ped., March. ⁷ Ann. of Otology, Feb. ⁸ Pacific Med. Jour., March. ⁹ Deutsche Med. Woch., vol. xxiii., No. 12. ¹⁰ Canada Lancet, March. ¹¹ Maryl. Med. Jour., March 13th. ¹² Peoria Med. Jour., March. ¹³ Jour. de Clin. et de Thér. inf., March 18th and 25th. ¹⁴ Jour. de Clin. et de Thér. inf., Feb. 25th. ¹⁵ Jahrb. für Kinderhk., vol. xlv., No. 2. ¹⁶ Bost. Med. and Surg. Jour., March 11th. ¹⁷ Med. and Surg. Reporter, March 20th. ¹⁸ Amer. Pract. and News, Feb. 20th. ¹⁹ N. S. Med. Jour., March 13th. ²⁰ Rev. d'Orthop., March 1st. ²¹ Pittsburg Med. Rev., March. ²² Dublin Jour. of Med. Science, February. ²³ Jour. de Clin. et de Thér. inf., March 4th. ²⁴ Jour. Amer. Med. Assoc., April 10th. ²⁵ Jour. Amer. Med. Assoc., March 13th. ²⁶ Le Bull. méd., March 3d. ²⁷ Med. and Surg. Reporter, Feb. 20th. ²⁸ Wiener Med. Woch., vol. xlvii., No. 10. ²⁹ Arch. für Kinderhk., vol. xxi., Nos. 5 and 6. ³⁰ Canadian Pract., March. ³¹ Le Progrès méd., Feb. 20th. ³² Med. News, April 3d. ³³ N. S. Med. Jour., March 27th. ³⁴ Le Progrès méd., March 6th. ³⁵ N. J. Med. Jour., April 3d. ³⁶ Amer. Jour. Med. Sciences, April. ³⁷ Brit. Med. Jour., March 6th. ³⁸ La Presse méd., Feb. 27th. ³⁹ Centralb. für Kinderhk., vol. ii., No. 2. ⁴⁰ Prager Med. Woch., vol. xxii., No. 9. ⁴¹ N. S. Med. Jour., March 20th. ⁴² The Lancet, April 3d. ⁴³ Med. News, March 27th. ⁴⁴ Med. Times and Hosp. Gaz., Feb. 27th. ⁴⁵ Jour. de Clin. et de Thér. inf., March 11th. ⁴⁶ La Policlin., April 1st. ⁴⁷ Le Bull. méd., March 10th. ⁴⁸ Montreal Med. Jour., March.

ITEMS.

The *College of Physicians and Surgeons* of Chicago has recently become the *Medical School of the University of Illinois*.

To the Editor of The American Journal of Obstetrics.

DEAR SIR:—We believe that the comfort of those American physicians who, with their relatives and friends, intend visiting Moscow during the meeting next August of the Twelfth International Medical Congress, will be greatly enhanced and the journey itself rendered more interesting and pleasant, as well as more economical, by proceeding as one party, instead of travelling singly or in small groups. Acting on this belief, we have secured considerable reductions in the ordinary steamship, railway, and hotel rates, and have succeeded in arranging an itinerary with the well-known tourist agents, Messrs. Cook & Sons. They assure us that the charges quoted are as low as is compatible with first-class service throughout the trip. An educated conductor will accompany each section of the party, and the journey may be broken at almost any point to meet emergencies. Will you assist in giving America her proper representation at the congress by publishing as full a notice of the excursion as you can and, if possible, by joining it yourself?

Very truly yours,

N. SENN,	D. R. BROWER,
CASEY A. WOOD,	J. B. MURPHY,
HAROLD N. MOYER,	D. A. K. STEELE,
EUGENE S. TALBOT,	B. T. WHITMORE.

CHICAGO, ILL., April 3d, 1897.

THE SEMI-CENTENNIAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—The semi-centennial meeting of the American Medical Association, which will be held in Philadelphia on the 1st, 2d, 3d, and 4th of June, 1897, bids fair to surpass, in the character of the entertainment, the scientific papers, and the number in attendance, any meeting which has heretofore been held. The committee in charge has been able to obtain large and roomy places of meeting for the general meetings and the section meetings, all within a single block and within very short walking distance or immediately adjacent to the largest and most comfortable of the Philadelphia hotels. For the week preceding and following the meeting the committee of arrangements has also arranged for clinical courses, which will be open without charge to all physicians who may visit the city at that time. These courses cover every branch in medicine and its specialties, and will afford visitors the opportunity of seeing the active clinical work of the best teachers of Philadelphia.

THE AMERICAN
JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.

VOL. XXXV.

JUNE, 1897.

No. 6.

ORIGINAL COMMUNICATIONS.

SUBMAMMARY INFUSIONS OF SALT SOLUTION IN PRIMARY
ANEMIA FROM HEMORRHAGE, IN SHOCK, AND IN
SEPTIC INFECTION.¹

BY

J. G. CLARK, M.D.,

Resident Gynecologist in the Johns Hopkins Hospital.
Baltimore, Md.

Hemorrhage and Shock.—For the last two years we have employed in the gynecological department of the Johns Hopkins Hospital submammary saline infusions in every case where there has been the slightest symptom of depression after operation, or of shock from the loss of blood in surgical or puerperal cases. The first case in which we had occasion to use this means of reviving a patient from the effects of a profuse hemorrhage demonstrated its value as a certain and rapid stimulant. The patient was admitted to the gynecological ward one afternoon, suffering with light labor pains and a slight hemorrhagic flow from the uterus. Examination: Vaginal mucosa of a slight purplish hue; cervix soft and slightly

¹ Read before the Gynecological and Obstetrical Society of Baltimore, December 8th, 1896.

dilated; uterus enlarged to the size of a three-months pregnancy. Diagnosis: Pregnancy; threatened miscarriage.

The patient was put to bed and a small dose of codeine administered in the hope that rest and sedative remedies might avert the miscarriage. The pains ceased toward evening, and she slept well in the early part of the night, but was awakened about midnight with severe labor pains, which terminated, before an interne could be summoned, in the expulsion of the fetus and a portion of the placenta. Immediately after the miscarriage the nurse observed a profuse flow of bright red blood from the vagina. By the time I reached the ward, twenty minutes after the miscarriage, the patient was in a very serious condition, her pulse being 140 and feeble, and there were many signs of severe anemia. The cervix was dilated only enough to permit the introduction of the tip of the index finger. It was at once evident that nothing could be accomplished in removing the retained membranes without instrumental dilatation of the cervix and curettage, so the vagina and cervix were hastily tamponed and the patient was hurriedly transported to the operating room. No time was lost in the operation, but at its completion the patient was in extreme collapse. Her pulse was almost imperceptible, the respirations were short, jerky, and irregular, and the mucous membranes were excessively blanched.

Previous to this case infusion of salt solution into the radial arteries had been used in offsetting the effects of hemorrhage, but in this instance it could not be employed. The pulsations of the artery were so feeble that they were imperceptible, and therefore no guide to the location of the vessel. After a tedious search the artery was found, but its lumen was so small that neither the infusion canula nor the smallest aspirating needle could be inserted.

In this extremity Dr. Edebohls' plan of infusing salt solution beneath the breasts came to my mind. An aspirating needle was inserted well under the mammary gland and the reservoir containing the salt solution, 0.6 per cent, was elevated six feet above the bed. The pressure was not sufficient, however, to force the fluid into the tissues, and we forced air into the closed reservoir with the reversed aspirator. Seven hundred centimetres of solution were forced in under one breast, after which a similar amount was injected beneath the opposite breast. Within twenty minutes from the time the salt solution began to flow into the first breast the patient's pulse began to show

marked improvement, and in one hour and a half her condition was so much better that we felt relieved of all anxiety about her.

The plan worked with such signal success in this case that Dr. Kelly at once abandoned the radial infusion, and we have now employed submammary infusion in 41 of the last 225 cases of abdominal section. In many of these cases there was very slight indication for stimulation of any kind, but the simplicity of the procedure and its freedom from bad results of any kind have so commended it that no patient is allowed to suffer from symptoms of depression or shock without its employment. Of the 41 cases thus infused none of them have suffered with so much as a cellulitis.

Puerperal and General Infection.—While our experience has not been extensive in the treatment of infectious cases with saline infusions, I think the following report of a case, taken in conjunction with the recent favorable literature on the subject, especially in the French papers, points very strongly to it as a highly useful remedy. In observing the case, one of puerperal sepsis, there was no doubt in my mind as to its value from the time the first infusion was given, and each infusion thereafter only confirmed this opinion. The patient was a robust colored woman, who had been a patient in the hospital once before when she was operated upon for a ventral hernia, which recurred soon after her discharge from the hospital. The hernia grew in size, and the patient again returned to the outpatient department, where she was examined by one of the junior assistants, who found a wide diastasis of the recti muscles, which was filled in by a hernial sac containing a pyriform tumor lying almost entirely outside of the peritoneal cavity. The case was sent into the hospital for further examination, and the tumor proved to be a five-months pregnant uterus. The patient was given a supporting bandage and asked to return to the hospital for her confinement, as we wished to see what progress the labor would make without the assistance of the recti muscles. She entered the hospital in December, 1895, and was delivered in a few days of a large, dead, macerated child which came in breech presentation. The great diastasis between the recti muscles, which prevented their active participation in the expulsive efforts, did not seem to retard the labor in the least. The placenta came away intact, but the uterus was still very large, the top of the fundus being situated above the umbilicus. The uterus did not show any ten-

dency to contract for several days. The day subsequent to her labor the patient had a temperature of 100° F., which ranged for the next three days between this point and 101° F. and then suddenly ascended to 104° F. The next day the temperature dropped to 101° F. in the morning, but again went up to 105° in the afternoon. That evening the patient was taken to the operating room and anesthetized. On examination the uterus was still found very large and the cervix easily admitted the index finger. A thorough digital exploration of the interior of the uterus showed it to be perfectly smooth, and there was not the slightest trace of pathological tissue detected. Consequently, with the exception of a very thorough irrigation with sterile salt solution (0.6 per cent), nothing further was done. For the next two days a continuous current of sterile salt solution was kept flowing in and out of the uterus, in the hope that it might facilitate the elimination of the infection, but it did not seem to affect the temperature in the least and was discontinued. While the temperature would rise as high as 105.5° F., and at one time to 106.5° F., the patient's pulse remained moderately good, considering the grave infection from which she was suffering. The seventh day after she was anesthetized, however, it showed marked evidence of failure, becoming rapid and intermittent, very feeble, and at times almost imperceptible.

By this time the patient's general condition had become very bad, she vomited all of her nourishment, her eyes were sunken, and she presented all of the appearances of impending death. At this time we decided to employ submammary saline infusion as a cardiac stimulant and for its possible diluent effect upon the toxins. A litre was first given, and the improvement was most gratifying. The patient felt much more comfortable, and her pulse dropped from 100 feeble, intermittent beats to 76 good, full, regular beats. Little or no change, however, was noticed in the temperature, which continued high for three subsequent days, when it began to fall; but the relief was so perceptible, to even the patient herself, that she requested a repetition of the treatment. A litre a day was given for seven days, and each time a marked improvement in the pulse was observed. The patient from the day the first infusion was given began to improve and finally recovered perfect health.

My attention was called to this subject by a recent editorial in the *Medical News*, in which the work of Claisse¹ and Bosc²

¹ Revue de Chirurgie, 1895.

² La Presse médicale, 1895.

was reviewed. I quote from the editorial in reference to septic infection cases as follows: "Take a patient suffering from severe infection—puerperal, for instance; all the organs are affected and are working badly, the temperature is about 104° F.; in ten minutes 1,300 to 1,400 grammes of saline solution are injected subcutaneously. Before half of that amount has been reached the improvement is manifest. The pulse becomes more regular, fuller, and stronger, respiration is deeper and less hurried, and possibly the temperature falls a degree at the end of the injection." "The patient feels better, is brighter, and possibly desires to urinate, but not any great amount. Usually the patient now enters what is known as the critical stage, which comes on generally in four or five minutes, though it may be delayed to half an hour. There is a violent chill, with sensations of extreme cold, strong, rapid pulse, and a rapidly rising temperature." Following this the patient goes through a fevered stage, from which she emerges, the temperature falls, and she may have no further trouble.

In the case which I report the symptoms correspond to those which Bosc narrates, with the exception of those of the critical stage which we did not observe. The patient was so extremely ill that these symptoms may have been masked and thus escaped notice. Her temperature showed only the slightest signs of improvement at first, but the pulse became decidedly better after each infusion.

So far we have seen none of the toxic effects which can be produced in dogs by the injection of large quantities of saline solution, and I do not think they need be considered, as in the experimental studies very much more of the saline solution, compared with the bodily weight, is used than in the human being. Certainly there is no occasion for fear of untoward symptoms from the injection of one or even two litres of saline solution at one time.

Several theories are advanced to explain the beneficial effects following these infusions, but they are all hypothetical and I will not quote them. An article in the *British Medical Journal*, July, 1896, reviews the reports of Duret, Sahli, Maygrier, Lejars, Chasserany, Toffier, and Proben, all of whom have reported cases of septicemia, surgical shock, and hemorrhage improved by the saline infusion.

Method of Infusing Saline Solution.—Graduated glass infusion jars of 1,000 cubic centimetres capacity, made according to Dr. Kelly's designs, are used as reservoirs for the solution.

The bottles are connected by five feet of rubber tubing to a long, slender infusion needle, the calibre of which is two millimetres in diameter, similar to an aspirating needle. The entire apparatus is sterilized and kept in a sterile envelope, and is available for use at any moment. Before giving the infusion, the breast is carefully disinfected, especially well in its dependent area. It is then grasped with one hand and lifted well up from the thorax, while the needle, with the fluid flowing from it, is quickly thrust beneath the gland. Usually simple elevation of the reservoir is sufficient to force the fluid into the loose cellular tissue, and the breast quickly begins to distend until even a flabby and atrophied organ will reach the size of the puerperal breast, and in a few instances I have seen the fluid spurt from the nipple when the breast is quite tense. The needle is quickly withdrawn and the puncture is closed with rubber tissue or adhesive plaster. If the fluid does not flow by its own pressure it can be effectually forced in by stripping the tube. The hands and tube are well anointed with vaseline; the upper portion of the tube is tightly pinched, and from this point down the tube is gently stripped between the fingers of the other hand, driving the column of fluid ahead into the tissue. The lower portion is then pinched between the fingers and the upper is released, allowing the water to fill the collapsed intermediary portion of the tube. Seven hundred cubic centimetres of solution may be injected under each breast. If care is observed in the cleansing of the breasts and the injection of the fluid, no untoward results will follow, which certainly cannot be said of the infusions either into the radial artery or vein.

A CASE OF PYEMIA IN A YOUNG INFANT.¹

BY

JOHN C. DA COSTA, M.D.,

Gynecologist to the Jefferson Medical College Hospital and to St. Agnes' Hospital,
Philadelphia.

THAT all cases of septic infection in the new-born, whatever may be the clinical manifestation, are due to the entrance into the body of pyogenic micro-organisms, is no longer a question of doubt. In these cases the leading causal agent may be

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, April 15th, 1897.

found in the streptococcus pyogenes, whether or not associated with the cocci of suppuration, or with such organisms as the diplococcus of pneumonia or the typhoid bacillus, both of which germs have been demonstrated as the cause of septicemic and pyemic conditions. Another organism has been recently shown to be associated with pyemic conditions in early infancy—the bacillus pyocyaneus. Cameron and Williams have lately reported three cases of fatal pyemia in young infants in which this germ alone was found, and they conclude that a certain number of cases of sepsis of the new-born are caused by this bacillus, suggesting for this condition the term “cyano-pyemia.”

Where do the micro-organisms producing the blood-poisoning gain an entrance into the circulation? In a large number of instances the umbilicus is the door to the infection. Given a point of suppuration, such as may exist at this situation, or a raw navel surface, it is apparent what a favorable nidus for development and portal for subsequent transmission through the system, either by the umbilical vein or by the lymphatics, is offered to the invading germs. But we meet sometimes with instances of pyemic infection in children in whom the umbilicus is apparently perfectly healthy, so that we must exclude this as a site of infection, and are compelled to look, frequently in vain, somewhere else for the primary seat of the process. We turn then to ascertain if there is any cutaneous lesion, for abrasions of the skin, however trifling they may appear, are sometimes starting points of fatal pyemia. We also examine the ear for signs of inflammation, remembering that pyemia may result from otitis of a purulent nature. We inquire into the condition of the intestinal tract; search for inflammations of the lungs and of the mucous membranes of the upper air passages; seek for lesions of the joints; and in breast-fed infants consider the possibility of the infection originating in a mastitis of the mother. Having exhausted all possible sources of infection without enlightenment, we are compelled to often class a case as one in which the infective agent was introduced “without any observable portal of entrance” (Ziegler), or, if we desire to cloak our ignorance by the use of a misnomer, to call it a case of “idiopathic pyemia.”

Once having gained an entrance into the circulation, thrombi, resulting from the coagulation necrosis excited by the septic micro-organisms, are formed in the vessels at the site of the lesion, and are washed away as emboli, laden with septic bacteria, to various parts of the body, producing, wherever they

lodge, abscesses. No organ or tissue is exempt from these widespread foci of suppuration, which frequently involve almost every organ of the body. The lungs, the liver, the kidneys, the spleen, and the heart are common seats of these metastatic abscesses; and the muscles, the joints, the connective tissues, and the serous and mucous membranes frequently present foci of abscesses minute and extensive.

With the onset of the systemic infection the child begins to have fever and sweating, and commences to rapidly lose flesh. Rigors, so common at the onset of pyemia in adults, are not often noticed in young infants. The temperature is not excessively high, and exhibits fluctuations which may closely simulate intermittent fever. As the fever develops the child becomes fretful and uneasy, refuses to nurse, and may pass frequent greenish, foul-smelling stools. Cutaneous disturbances, such as erythema, petechiæ, and herpes, are commonly observed. Abscesses, which may involve extensive areas, are formed. The location of the abscesses is dependent, of course, upon the point of lodgment of infected emboli; they are commonly seen at the joints, in the subcutaneous tissue and muscles of the limbs and chest, and under the scalp. When the lungs are involved physical signs of bronchitis, lobular pneumonia, abscess, and empyema may be made out, although generally the pulmonary manifestations are slight and poorly marked in proportion to the nature and extent of the lesion. When the renal structure is implicated the urine contains free blood, albumin, renal epithelium, and casts of the hyaline, blood, and epithelial varieties. There may be present signs of peritonitis, either general, or localized near the umbilicus. Among the rarer complications are involvement of the endocardium, pericardium, and pleura, of the pia mater, and of the conjunctivæ and retinæ. In old cases of pyemia there have been found the evidences of osteomyelitis; and in some cases erysipelas results from the infection.

The history of the case which I have to present to-night is interesting, both on account of its infrequency and because of its obscure origin. The child, a female, was born October 31st, 1896, after a tedious but uncomplicated labor. Both parents were healthy, and the child itself gave every appearance of being a normally healthy infant. The cord came off on the fifth day, leaving a perfectly healthy stump, which had healed entirely by the tenth day. Owing to strenuous objections on the part of the mother toward nursing the baby, it was of

necessity put on the bottle when it was 3 weeks old. The beginning of the fourth week it contracted a slight coryza, which continued for fourteen days; the lungs were at no time involved. During this attack the urine was normal, the bowels regular, and the child's sleep and nursing unaffected. By the sixth week the coryza had entirely disappeared. With the exception of this attack the child seemed perfectly well from birth until January 1st, 1897, when it was 2 months and 1 day old. On the morning of the latter date, without previous symptoms, the right leg, foot, and thigh were found to be swollen to nearly twice their natural size, edematous, painful, but not discolored, looking like a case of cellulitis. The labia were also swollen, edematous, and brawny, and measured one-half to five-eighths of an inch in thickness. The next day (January 2d) the swellings noted the day before were noticeably less marked, but now it was seen that the left elbow was acutely inflamed, swollen, and tense, and the left forearm and hand also swollen. By the third day of the illness (January 3d) the parts before involved (the right leg and the left arm) had improved, the swellings being of much smaller extent; but now on the posterior part of the left parietal bone there appeared a swelling, hemispherical in shape, about two inches across its base, and as hard as bone to the touch. This tumor entirely disappeared by the following day (January 4th); the right lower limb had regained nearly its normal contour and appearance, but enlargement of the left elbow was still noticeable. Abdominal distension, with a good deal of tympany, was now noticed; the facial expression of the child became pinched and anxious; Cheyne-Stokes respiration set in at 11 o'clock that night, and death occurred early the next morning.

An abstract of the post-mortem notes of Dr. A. O. J. Kelley, who kindly conducted the necropsy, showed that the swelling of the external genitalia and right leg was due to a serous infiltration of the tissues. The left elbow contained pus, and the bones forming the joint were loosely attached and gave rise to a sensation of roughness when rubbed together. Pus was found in the swelling over the left parietal region. The abdominal cavity contained a quantity of sero-purulent fluid and lymph flakes, and the intestines were united to each other and to the abdominal viscera and parietal peritoneum by bands of recent lymph. The spleen was greatly enlarged and quite soft. The liver showed areas of fatty degeneration. The kidneys

were increased in size, soft, with non adherent capsules, and showed alternating reddish and yellowish areas in the thickened cortex. The gastro-intestinal tract, urinary bladder, internal genitalia, and the blood vessels of the abdomen, umbilicus, and right leg, were normal. Nothing abnormal was shown by examination of the lungs, pleura, and pericardium. The heart was slightly enlarged, soft, flabby, friable, and of a reddish-yellow hue. There were no marks or scratches of any kind on the child's body.

Many phases of this case favor the diagnosis of acute osteomyelitis, the rapidity of the suppuration, the marked constitutional symptoms, and the joint involvement all pointing toward this disease. The condition of the joint and bone post mortem, however, does not warrant this diagnosis being made; and the initial sign of the disease appearing as a cellulitis of the leg, with subsequent formation of metastatic foci of suppuration, and finally the involvement of a joint in the process, lead me to consider the case one of acute general pyemia, having the clinical manifestations of multiple abscesses of the cellular tissue, peritonitis, and joint suppuration. The origin of the infection in this case is exceedingly obscure. Infection through the umbilicus seems, in view of the healthy condition of the navel and its vessels, to be entirely improbable. The previous inflammation of the upper air passages, from which the baby suffered four weeks before death, had it occurred more recently, might have served to explain the source of the infection; as it was, it is reasonable to believe that, had the septic process originated here, symptoms would have supervened earlier. The milk as the infective agent has been apparently demonstrated by some authorities, but I consider it as extremely unlikely that this was the vehicle in this instance. There were no symptoms which would lead one to infer that the septic poisons were absorbed from the gastro-intestinal tract or from the external genitalia; there had been no inflammatory disease of the eyes, and the child's skin had never received a bruise or scratch. Inasmuch as no bacteriological examination was made in this case, both the precise nature of the infective agent and the initial site of the lesion must remain unknown. The treatment, which consisted of the usual supportive and stimulative measures, was without avail, as is the usual result in these grave cases of pyemia, and the case ran its course in spite of these means.

REFERENCES.

- CAMERON AND WILLIAMS: *Journal of Pathology and Bacteriology*, 1896, p. 344.
 LOVE: *Australasian Medical Gazette*, 1895, p. 253.
 JOHNSON: *Maritime Medical News*, 1891, p. 51.
 HART: *North American Practitioner*, 1889, p. 33.
 ETIENNE: *Les Pyosepticiémies médicales*, Paris, 1893.
 MILLS-ROBERTS: *Lancet*, 1893, p. 692.
 BENNETT: *Lancet*, 1890, p. 200.
 LUCAS: *Lancet*, 1889, p. 168.
 COUPLAND: *Lancet*, 1888, p. 420.
 HAMILTON AND MARTIN: *Montreal Medical Journal*, 1895, p. 421.
 PHILLIPS: *British Medical Journal*, 1895, p. 1205.
 ZIEGLER: *General Pathology*, New York, 1895.

TREATMENT OF ACUTE SALPINGITIS.¹

BY

WILLIAM P. CARR, M.D.,
 Washington, D. C.

As this paper is based upon generally accepted facts and upon my own observations, I shall, perhaps, find it convenient, for the sake of brevity, to appear a little dogmatic. I beg you to believe, however, that the paper has no dogmatic animus, but is a very modest offering of personal opinion which I hope to have freely criticised and corrected.

Under the head of acute salpingitis I include acute inflammation of the tube, or tube and ovary, and a certain amount of local peritonitis which invariably accompanies these conditions, but exclude as a separate and entirely distinct disease infection of the uterus and pelvic tissues through lymphatic absorption.

I think the statement will be accepted without question that acute salpingitis is the result of extension of inflammation or emigration of bacteria from the uterine cavity, and that in any case of endometritis or septic condition of the uterine cavity there is danger of its occurrence. But this danger is particularly great in gonorrheal endometritis, or when the uterus contains any very active and virulent germ, or when some form of obstruction prevents free drainage of its cavity. It is therefore evident that the prophylactic treatment of salpingitis is of great

¹ Read before the Washington Obstetrical and Gynecological Society, November 6th, 1896.

importance and that it consists in draining and disinfecting the cavity of the uterus. Much good is undoubtedly being done in this line, and I feel sure this prophylaxis will be still more effective in future with improved methods of treating endometritis and with the general abandonment of gauze drainage for septic uteri.

However, it is not my intention to go into the treatment of endometritis at present, and I shall proceed to the consideration of acute salpingitis when infection of the tube is established. Much will depend upon the stage and severity of the attack and upon the patulous or obstructed condition of the tube at its uterine extremity. Usually acute salpingitis is not very sudden in its onset; at least there will be a period of considerable duration, marked by local pain and tenderness, during which there is perhaps some pus formation in the tube, but this pus, not being retained by adhesions or obstructive swelling, escapes through the uterus. Some of it may also escape at the fimbriated end and involve the tube and ovary in a mass of inflammatory deposit, or this inflammatory deposit may occur without actual escape of septic matter. During this stage of the disease there is hope of cure by resolution, and the object of treatment should be to prevent inflammatory swelling of the tube and consequent damming up of the pus in its lumen. If this can be accomplished large masses of inflammatory lymph will disappear without leaving a trace. I have seen a hard mass as large as my fist disappear completely within three weeks. Keen's experiments upon dogs have conclusively shown that immense quantities of recent inflammatory deposit may disappear without leaving the slightest trace. But if the irritation is sufficiently prolonged this inflammatory lymph will be replaced by connective tissue rich in blood vessels, which is permanent and which becomes tougher and denser with time. Even after pus has been dammed up in a tube by inflammatory thickening of its walls there is a possibility of its escape upon subsidence of the swelling, and there is no doubt in my mind that this does occasionally occur, and that I have seen it occur in one or two cases.

I believe that a thorough, systematic treatment of acute salpingitis in the early stages will result in resolution in a large majority of cases, and that, failing in this, we should not attempt to perform a radical operation during the acute stage, but that we may almost invariably, by safe palliative measures, tide the patient over the acute stage and perform a radical ope-

ration, if it is still found necessary, upon a chronic condition, without septic fever, and with comparative safety.

It seems almost impossible at the present time to fix any mortality statistics for various operations, but it will, of course, be conceded that it is vastly safer to operate upon a chronic case without fever than upon an acute pus case with septic fever already existing. My own conception of the relative mortality of the two operations is one or two per cent for chronic cases and at least ten per cent for acute—perhaps I should say twenty or twenty-five per cent.

The treatment of acute salpingitis that I shall offer contains nothing new, but is simply a plea for conscientious observance and careful carrying out in detail of each and every measure that is believed to be of any value, however slight, so long as it does not conflict with something deemed more important. It may conveniently be considered under several heads, as follows :

1. *Rest.*—The importance of absolute rest in bed can hardly be over-estimated. I shall not attempt to explain its *rationale*, because I believe we are all agreed as to its value. I simply wish to emphasize the importance of making it as absolute as possible. The patient should not be allowed to get up to evacuate the bowels or bladder, nor be propped up in bed, and should be made as comfortable and cheerful as possible, and encouraged as much as possible so as to conduce to mental as well as physical rest. I think I have seen relapses due to very slight infractions of this rule.

2. *Nursing.*—A good trained nurse is of the greatest value. She can enforce rest, cheer the patient, entertain her by reading, make her comfortable by enforcing cleanliness of the patient's person and surroundings, and in many ways increase her chances of recovery, besides carrying out the directions which are to follow.

3. *Food and General Medicine.*—With increasing knowledge of Nature's methods of dealing with invading bacteria we recognize more and more the important part played by the leucocytes and the blood serum. We look to these minute but active agents to do the actual work of resolution, and we know that if the swelling of the wall of the tube is to be reduced it will be done principally through the active agency of the leucocytes. But no army can do its best fighting and no laborer his best work upon a short ration, and we must see the necessity of providing this army of microscopic soldiers and laborers

with the best possible ration in the form of rich blood serum. And as our only means of enriching the blood serum is by increasing the digestion of suitable food, it becomes apparent that digestants and digestive stimulants, such as hydrochloric acid, pepsin, strychnia, and alcohol, may play no small part in the final result. The food should, of course, be of the most nourishing and easily digestible kind, and the quantity limited only by the ability to digest. Nitrogenous food, beefsteak, eggs, milk, beef juice, etc., should be the chief reliance, and great care and judgment are necessary in regulating the amount and frequency in individual cases. It is also necessary to prevent the blood from becoming charged with excretory poisons, as far as possible, by keeping the bowels open and the skin clean. The bowels should be moved at least every other day by enema or salts. Antiseptics, given internally or hypodermatically, are of doubtful value. While there is reason to hope that such methods may be in future improved to a degree of practical value, I should not at present advise their use. Morphine should only be used when the pain is so severe as to cause great restlessness or sleeplessness. For sleeplessness alone it should not be given, as sulphonal or chloral or bromides will suffice. As a rule, the pain can be controlled by other means to be mentioned, except when a large pus collection is forming; the pain may then be very severe, and morphia should not be withheld except when it becomes necessary in order to evacuate the bowel.

4. *Local Treatment per Vaginam*.—Thorough uterine drainage should be at once established and maintained. I do not consider gauze drainage effective, and prefer the Outerbridge drainage tube for this purpose. This tube can usually be inserted without pain if the cervix can be got in proper position, but if there is cervical obstruction, or great pain is produced by the attempt to bring the cervix in position, an anesthetic may become necessary. Curetting with a blunt curette or flushing the uterine cavity, or both, may be advisable in case there is abundant or offensive discharge, and these measures are necessary if the uterus contain retained placental tissue, clots, or other débris. Vaginal douches of hot water, continued for twenty to thirty minutes, with the patient lying on her back, seem to promote resolution and are often effective in relieving pain, particularly if a one per cent solution of carbolic acid be used. If the douches cannot for any reason be used, or if they cause pain instead of comfort, tampons of glycerin and iodine, or glycerin and ichthyol, may be found useful.

5. *Local Applications to the Abdomen.*—Hot fomentations or turpentine stupes relieve pain to a considerable extent and perhaps promote resolution. They may be followed, when the pain is diminished, by applications of tincture of iodine.

These measures, if carefully carried out, will, I believe, result in a cure in the great majority of cases, or in reducing the inflammation to a chronic state, when a radical operation can be safely done. But should the inflammation increase, a large collection of pus will sooner or later distend the tube, which becomes fixed to the pelvic floor and bulges into the vaginal vault beside or behind the uterus. It may then be tapped and drained, either with a bistoury, or trochar and canula which is perhaps safer. If there is any doubt about the presence of pus in the mass, its presence may easily be demonstrated by means of a hypodermatic needle or exploring needle. I have opened eight such pus collections, in one case evacuating three pints of pus, without any form of anesthetic, and with little evidence of pain in any of the cases. A rubber drainage tube was then inserted and stitched in place, and allowed to remain from ten days to a month. It is hardly necessary, however, to keep in the tube longer than a week, as after that time the opening will remain patulous for a sufficiently lengthy period. After this slight operation the fever will disappear, the general health improve, the patient may be allowed to get up, and, when her condition is satisfactory, a radical operation may be done with comparative safety. I do not regard this vaginal puncture as curative, but simply as a palliative measure, though in some rather rare instances it does result in a complete symptomatic cure.

The points I wish particularly to emphasize and have discussed are:

1. That in the earlier stages a more systematic, careful, and full treatment than is usually adopted would result in a much larger number of cures by resolution than is now obtained.

2. That puncture and drainage of the pus cavity through the vagina, while it may in rare instances be all that is necessary, should be regarded as a palliative or preparatory means, to be followed at the proper time by radical operation.

3. That it is seldom, if ever, necessary to perform a radical operation during the period of general septic infection and fever, and that no such operation should be attempted unless it is believed necessary to save life.

STRANGULATED HERNIA

A SEQUEL OF AN OVARIOTOMY PERFORMED TWENTY-SEVEN YEARS
PREVIOUSLY.

BY

J. ERNEST STOKES, M.D.,

Assistant Resident Gynecologist, Johns Hopkins Hospital,
Baltimore, Md.

(With three illustrations.)

THIS case is especially interesting, not only from the fact that the cause of death was a sequel of an operation which had been performed so many years before, but also on account of the interesting form of strangulated gut which I found on making the autopsy.

The case, a patient of Dr. Sneider's, of New Oxford, Pa., was seen by Dr. H. A. Kelly February 9th, 1897. She was a small, well-nourished woman, white, age 75 years, nullipara. Had been operated upon at the age of 48 by Dr. John Atlee, of Lancaster, Pa., assisted by Dr. Herricks, October, 1869.

Dr. Atlee anticipated a simple operation for cystoma ovarii, but found, on opening the abdomen, that there were numerous adhesions, the operation lasting four hours. He told the husband of the patient afterward that he did not expect her to live through the night, though before the operation he had expressed the hope that she would be up to enjoy the "Christmas festivities." Her convalescence was prolonged, however, and she was bedridden up to the month of February. There was protracted suppuration, the pedicle ligatures having been left hanging out of the lower angle of the incision, according to report.

Ever since the operation the patient had had a ventral hernia and suffered from more or less frequent attacks of intestinal colic, acute indigestion, and protracted cramps, which necessitated her going to bed and making hot applications to abdomen, after taking active cathartics. In spite of this she was known as an active, energetic woman, and only a few days previous to the last attack was seen to "run up" stairs to get a new dress to show her friends.

Inspection.—The abdomen was irregularly enlarged; two masses could be seen protruding outward and downward on

each side of the old scar. In the median line the skin was very thin, and on either side of this it was normal. The abdominal scar reached from four centimetres below the umbilicus nearly to the symphysis pubis, and had five or six radiating lines running out on either side, showing the position of the interrupted sutures used by Dr. Atlee in closing the wall (see Fig. 1).

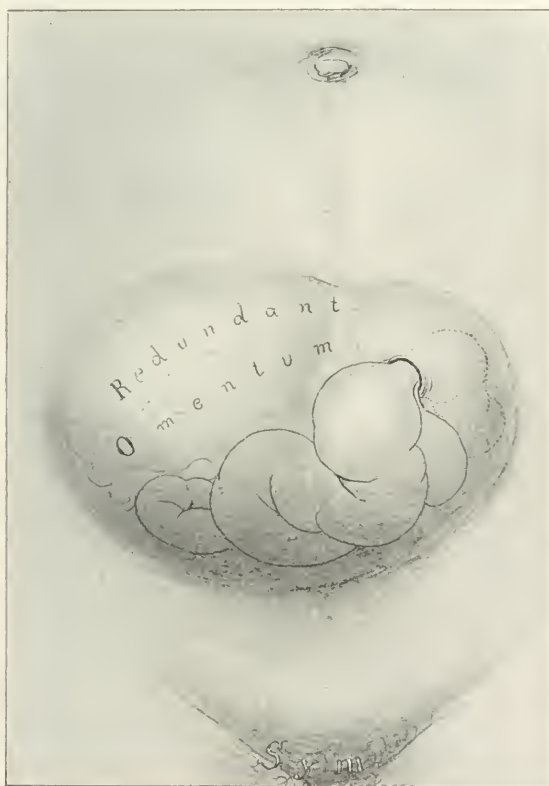


FIG. 1.

There was a mass on the right side eight by ten centimetres in diameter, firm and regular in outline; on the left side the mass was fourteen by fourteen centimetres, prominent, tense, rather hard, and very painful on manipulation. Even under anesthesia it was not possible to reduce the mass at all. The utmost which could be effected was to cause some of the contents of the tumor to regurgitate into the abdomen, to return again

as soon as the pressure was withdrawn. The tumor was everywhere tympanitic. Harder and slightly lobulated areas around

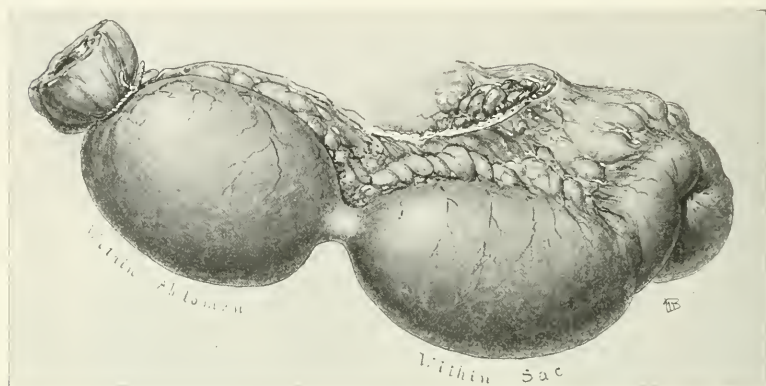


FIG. 2.

the base of the tumor were diagnosed as portions of an incarcerated omentum.

After failing to reduce the tumor by manipulation under slight chloroform narcosis, the patient was more deeply anesthetized with ether and placed upon the table for operation.



FIG. 3.

She was cyanotic, with a pulse of 120, weak and of small volume. Shortly after having been placed upon the table, in the

midst of washing up the abdomen, a thin, yellowish fluid, distinctly fecal in character, began to well out from the patient's nose and mouth, and she suddenly collapsed, dying before the abdominal incision could be made.

By permission of the family a post-mortem examination was made. By an elliptical incision into the sac, made on either side of the primary incision, the thin abdominal walls, made up of skin and small amount of adipose tissue, were dissected up, exposing a firm, fibrous band which formed the neck of the "hernia ring," twenty-five by eighteen centimetres in diameter. This ring was composed of the recti fasciæ on the upper surface and the adherent peritoneum on the under surface. The parietal peritoneum was smooth and glistening. The intestines, of a dark reddened hue, were found greatly distended, both above and below the point of constriction, and entirely filled the abdominal cavity. On the left side a coil of ileum twenty centimetres in length was found protruding over the left margin of the "ring" and extending down immediately beneath the skin into the left lumbar region; then, doubling on itself, it passed back over the lower limb of the loop and again through the ring into the general cavity (see Fig. 1). The point of constriction was where the lower limb of the loop protruded down over the edge of the ring. The upper limb was not constricted. On making traction upon it there was no difficulty in freeing and drawing the entire coil of intestines out of the ring; though the constriction of the lower limb during life had been so great as not only to completely occlude the lumen, but almost to sever the gut (see Figs. 2 and 3). On the right side the bulging mass which had been felt externally proved to be a tremendously redundant omentum, the lower end of which had entered the sac and lay between the abdominal wall and the ring, but nowhere was it incarcerated.

A CASE OF ECLAMPSIA SUCCESSFULLY TREATED WITH LARGE DOSES OF VERATRUM VIRIDE.¹

BY

JOHN B. SHOBER, M.D.,

Visiting Obstetrician, Philadelphia Hospital; Gynecologist, Howard Hospital;
Assistant Gynecologist, Gynceean Hospital,
Philadelphia.

MRS. R., age 27, married five years, seven months advanced in her first pregnancy, developed violent headache on September 21st, 1896. The following morning at 4 A.M. she called in her family physician, Dr. Hagarth, of Bar Harbor, Me., to whom I am indebted for the notes of the case. He found her resting quietly, but complaining of severe headache. The husband stated that at 4 A.M. she had a violent convulsion which lasted forty-five minutes. A hypodermatic injection of morphia sulphate, one-quarter of a grain, was at once given, and the patient became quieter and complained less of headache until 6 A.M., when she had a second violent convulsion which lasted twenty-five minutes. She remained unconscious for twenty-four hours. During this time she passed but two ounces of dark, cloudy urine, which upon heating was found to be solid with albumin.

On the morning of September 22d I saw the patient in consultation with Dr. Hagarth. During the previous twenty-four hours she had received morphia sulphate, three-fourths of a grain, in two doses hypodermatically; chloral hydrate, thirty grains, by mouth; and sodium bromide, thirty grains, per rectum. She had slept quietly for eight hours, waking however quite often, only to fall asleep again. There had been no action of the bowels for two days. The skin was dry, the temperature normal, and the pulse about 98, tense and regular. She complained of headache and "motes before the eyes." The os uteri was rigidly contracted; the fetal heart sounds were heard in the normal position on the left side. The following treatment was ordered and begun at once: Extract of veratrum viride, twenty minims every four hours; morphia

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, April 15th, 1897.

sulphate, one-fourth of a grain night and morning: and active catharsis. Four compound cathartic pills and large doses of Rochelle salts were administered, and toward evening she had three or four large bowel movements.

She improved greatly. The next morning the pulse was soft and compressible and of good strength. The pulse rate had dropped to 82. Her mind seemed decidedly more clear, and she expressed herself as feeling well enough to get up. It was decided to stop the morphia and to increase the quantity of veratrum viride. Accordingly this drug was ordered in forty-minim doses every four hours, and its effect upon the heart and general condition carefully watched. On this day, the third since the convulsion, an attempt was made to stimulate the action of the skin by passing steam under the bedclothes; it was only partially successful, but the general effect seemed good.

The patient steadily improved from this time. Her mind remained clear, the headache disappeared, and she complained only of spots before her eyes for several days. Veratrum viride was reduced on the 24th to ten minims every four hours. The urine gradually increased in quantity, until at the end of six days she was passing one hundred ounces in twenty-four hours. It contained less albumin, but throughout gave a decided reaction with the acetic-acid boiling test. The pulse rate remained at about 84 beats per minute and continued soft and compressible. On about the eighth day the dose of veratrum viride was reduced to four minims four times a day. On October 5th Dr. Hagarthy was called hurriedly and found the patient in labor, and delivered her of a fairly healthy seven and a half months' baby. She showed no signs of convulsions and had an easy labor. The child and mother did well. The urine of the mother contained a decided quantity of albumin (percentage not stated) and continued to give the albumin reaction for several weeks. It gradually, however, entirely disappeared.

At the time when she first came under observation the microscope showed abundant granular, epithelial, and blood casts, also free blood corpuscles. The blood entirely disappeared at the end of a week, being one week before she was confined, and the casts disappeared with the albumin at the end of a few weeks.

The action of veratrum viride in this case was truly remarkable. She received in all, during the two weeks preceding her labor, eight hundred and thirty minims of the drug, which is

equal to thirteen and two-thirds drachms. The only action it had upon the pulse was to slightly reduce the rate and to make it softer and more compressible. It did not reduce its strength. The quantity of the urine increased day by day, and the quantity of albumin slowly and steadily diminished. The patient had an easy premature labor, and the child lives and is healthy. The mother's kidney symptoms entirely disappeared, so that she was finally restored to health.

112 SOUTH SEVENTEENTH STREET.

CLINICAL NOTES.¹

BY

BARTON COOKE HIRST, M.D.,
Philadelphia.

(With three illustrations.)

I. TWO CESAREAN SECTIONS, ONE FOR A DERMOID CYST IMPACTED IN THE PELVIS, THE OTHER FOR A FLAT RACHITIC PELVIS AND AN OVERGROWN CHILD. II. A CYST OF THE LABIUM REMOVED WITHOUT RUPTURE. III. A COCCYX EXCISED FOR UNUNITED FRACTURE.

THE first case I have to report is that of a woman pregnant for the first time and in labor three or four weeks after term. There was, on palpation, evidently an overgrown child. She had a generally contracted, flat rachitic pelvis, with a conjugate of seven and a quarter centimetres, which of itself was not an absolute indication for the performance of Cesarean section, but in consideration of the child's size, and as the case turned out, this diameter in this instance did constitute an absolute indication.

I saw the woman first when her labor had been going on for a few hours, and I saw her later when she had been in labor fully thirty-four hours. There had been no progress, the head was enormously distorted, there was a tremendous caput succedaneum which reached from the superior strait to the vulvar outlet; but the head, far from being engaged, bulged out at least one inch beyond the anterior surface of the symphysis.

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, April 15th, 1897.

and it seemed to me that the application of axis-traction forceps or the performance of version would have been equivalent to doing craniotomy on a living child, as the heart sounds could be heard and the movements felt. By careful bimanual palpation I convinced myself that the head was considerably enlarged, and, taking into account the other unfavorable elements in the case (long labor and contracted vagina of a primipara), I decided against symphyseotomy, which might have been considered with this degree of contraction. But it has become one of my clinical rules never to do symphyseotomy when there is any unfavorable element in the case at all. I was once in the disagreeable predicament, after cutting a woman's symphysis, of not being able to extract the child. Accordingly I performed Cesarean section on this woman, and the measurements of the child and the conditions found after birth justified the step. The child was much overgrown, and the head measurements, in spite of the tremendous moulding and compression, were all considerably above the normal; the fronto-occipital circumference, for example, was thirty-six and a half centimetres, and would have been a good deal more if the child's head had maintained its natural shape. There is no question, from these measurements, that labor was impossible and that the Cesarean section was absolutely indicated. The woman did perfectly well, and the child lived and is thriving to-day, six or seven weeks after the section. I removed the womb from this woman, as I do in every like case. I do not think an individual with this degree of contracted pelvis should incur the risk of bearing children.

The second case is extremely interesting. I was called late one evening to a young woman, age 19, in labor with her first child, and was told she had been in hard labor four days and a few hours over. On examination I found the whole pelvis filled by a firm tumor, which I took for a fibroid. The cervix was jammed close against the symphysis, and there was not room to pass a single finger between tumor and pelvic bones. Of course it was obvious that Cesarean section was absolutely indicated, unless the tumor could be dislodged. I tried first to displace the tumor, but found it would not budge a particle. I have learned, as we have all learned who have seen many of these cases, that it is most unwise to exercise great force in this attempt. Dr. Norris reported at the last meeting of this Section the case of a woman with an impacted dermoid cyst in the pelvis, in which two physicians had endeavored to displace the

tumor by pressure upward. They had ruptured the cyst, the sebaceous contents had been distributed all over the peritoneal cavity, and the woman died of septic peritonitis.

As soon as I found it impossible to displace the tumor in my



FIG. 1. — Dermoid cyst containing hair and teeth, and puerperal uterus, removed in a Porto-Cesarean section.

patient I put her in a carriage, took her to the hospital, and performed Cesarean section as soon as she could be prepared for it. I found that the tumor, instead of being a fibroid, was a dermoid cyst with very thick walls. I delivered the child, and then, unfortunately, felt myself obliged to remove the

womb (Fig. 1). This is a case in which, if possible, the womb should be left behind. There is no reason why such a patient should not have other children. However, I did not dare leave that womb in the peritoneal cavity, because it had already begun to become gangrenous, the endometrium was black and smelt badly, and there was an extraordinary edema of the broad ligaments and of the lower uterine segment. The subperitoneal tissue in these regions was swollen to almost an inch in thickness, so that it was extremely embarrassing to place the ligatures properly around the uterine arteries. The child was delivered living and is alive and well to-day, some eight weeks



FIG. 2.—Cyst of the labium dissected out entire with its original fluid contents.

after the operation. The mother made an afebrile convalescence. If the womb is to be left *in situ* and not removed after removing the child, it should not be torn, but a clean slit should be made in the wall with scissors. You see in this specimen how ragged the rent is where it is torn with the fingers. This, however, is much the quickest way of getting the child out. The case just reported gives me an experience of eighteen Cesarean sections.

The specimen I next present (Fig. 2) is a cyst of the labium, a retention cyst of Bartholin's glands, dissected out entire. Removed in this way it is perfectly sure that no portion of the secreting membrane is left behind. It leaves rather a deep

hole in the labium, but the cavity may be closed with tier sutures of catgut.

The next specimen is, to me, extremely interesting. The history of the woman from whom it was taken is instructive. She is a lady from Massachusetts, who nine years ago was delivered with forceps. In the process of delivery her child was fatally injured by compression of its head, her perineum was torn into the rectum, and her coccyx was fractured. In addition to the misery of a torn sphincter, this broken coccyx gave



FIG. 3.—Median section of coccyx embedded in paraffin, showing an oblique fracture running through the second vertebra. The vacant space between the lower end of the anterior fragment and the main body of the bone was filled with an exuberant mass of spongy bone tissue that dropped off when the bone was taken out.

her pain on every movement. Two attempts were made by New York gynecologists to repair the perineum, but both failed. I finally operated upon the perineum and restored it with entire success. The sphincter is firm and she has control over feces and wind. I wished at the same sitting to take out the coccyx, but she would not allow it.

She returned two months later, however, and I removed the coccyx. The fracture is oblique, running through the second vertebra into the joint between the first and second bones.

making the lower fragment of the bone extremely mobile, although all the joints below the second are firmly ankylosed (Fig. 3). The sacro-coccygeal joint remains perfectly movable. The second joint is involved in the fracture. Everything below is firmly ankylosed.

In removing this bone I did something I never did before : I only took out the diseased portion of it and all below, leaving the first vertebra of the coccyx in place, attached to the sacrum by a perfectly normal joint, and assuring myself that the lower surface was perfectly smooth, round, and even. It seems to me that this is a wise plan. There are muscular attachments to this vertebra which I believe it is better to preserve. It is unfortunate that we must sever attachments of important pelvic and peritoneal muscles to the lower part of the coccyx. At any rate, it would seem better to preserve as much of the bone and as many of its attachments as possible.

1821 SPRUCE STREET.

THREE CASES OF ECTOPIC GESTATION, TWO UNRUPTURED AND ONE RUPTURED.

BRIEF CLINICAL NOTES.

BY

JAMES F. W. ROSS, M.D.,

Lecturer on Minor Gynecology, University of Toronto, etc.,
Toronto, Canada.

(With plate.)

THE three following cases were reported to the Toronto Medical Society and the specimens shown. The cases are reported to add still further to the history of the subject of ectopic gestation and to other cases already published in this JOURNAL. The stereotyped symptoms given by the text books are not always met with in the presence of tubal pregnancy. Some have stated that it is almost impossible to diagnose ectopic gestation before rupture. We have facts here to prove the contrary.

CASE I.—Mrs. L. Patient was nursing her child, which was 17 months old. She did not miss a period, but was regular. Menstruation came on for one month as usual, but it continued for four weeks. She consulted her physician, who advised her

to return again if the flow continued. She was examined at a later date, and a small mass was found in front of the uterus to the right side. She was sent to me for examination, and I found the left tube and ovary healthy, right ovary normal, the right tube small at the uterine end but enlarged at its outer end and lying in front of the uterus. I concluded from the symptoms that the case was one of extrauterine pregnancy and advised immediate operation. Patient was going around in apparent good health, suffering no pain, but complained of slight discomfort. Two days after I saw her the abdomen was opened and a pregnant tube drawn up on the right side. There were no adhesions. A small quantity of blood was found in the peritoneal cavity, unclotted and tarry in appearance. Blood could be made to ooze out from the fimbriated end of the tube by pressure on the distended portion. No rupture of the tube was found. The blood had evidently been oozing out drop by drop from the fimbriated end. The abdomen was washed out with warm water and drainage tube placed. The patient made an easy recovery. Fig. 1 shows the appearance of the tube after removal.

CASE II.—Mrs. I. Seen in consultation with her physician. A baby a little over a year old had just been weaned. Menstruation had returned, but no period had been missed. Irregular flowing from the uterus began; this continued for two weeks without cessation and gave the patient a great deal of annoyance. She would leave the house, walk down-town, and while there the flowing would return. It would cease again and would again recur.

I saw her in consultation, and under an anesthetic a small cyst could be felt in the neighborhood of the ovary. It felt as if this cyst was at the fimbriated end of the tube. Its walls were tense and it felt thinner than the tube covering a tubal pregnancy. The cyst felt at this time can be seen in Fig. 2, marked C. I was unwilling to give a positive opinion regarding the presence or absence of a uterine pregnancy, and decided to wait and watch.

Two weeks later I again saw the patient, made another examination, and was still unable to come to a definite conclusion. A week later we again administered an anesthetic, and.

EXPLANATION OF PLATE.

Fig. 1.—A, ovary; B, tubal gestation (tenth week).

Fig. 2.—A, ovary; B, tubal gestation (six to eight weeks); C, small cyst.

Fig. 3.—A, ovary; B, tube; C, ruptured ectopic sac (ten to twelve days) in isthmus of tube.

as a decided enlargement could be felt in the tube, extrauterine pregnancy was diagnosed. The small cyst C could still be made out and the ovary at A. Immediate operation was advised.

Next morning Dr. J. H. Cotton and I opened the abdomen. The left tube and ovary were drawn up and removed. The tube was found to contain an ectopic gestation. There were no adhesions and no evidences of hemorrhage present. Patient made an uninterrupted recovery.

CASE III.—Mrs. S., æt. 28. She had one child 15 months old. She menstruated once after the birth of the child, and then went five weeks—that is, up to the time that she was taken ill with the symptoms of the ruptured tube. There was no uterine hemorrhage in the interval nor at the time of rupture. The patient was doing her work as usual until about 3 o'clock in the afternoon, when she was suddenly seized with violent pain in the abdomen that immediately doubled her up. She had no idea there was anything wrong with her up to this time. She endeavored to rise up from the chair into which she sank, but found it was impossible to straighten herself. She endeavored to move again and fainted. A frequent desire to pass urine now came on. She dragged herself to bed and lay down with her clothes on. There was no one in the house except the child. The husband found her in this condition when he returned from work. The pain had in the interval disappeared, but she felt weak. No alarm was felt about her condition until about 11 P.M., when the family physician, Dr. Rowan, was sent for. He found her suffering from considerable precordial uneasiness. She looked pale and was bathed in cold perspiration. She was pulseless at the wrist, but said she felt better.

I saw her within three-quarters of an hour, and found that, though she was pulseless at the wrist, the heart was beating only 100 to the minute. "The bottom had fallen out of the pulse." It only took a few seconds to confirm the diagnosis of the attending physician. We had had a similar case together once before, and in that instance considered the possibility of rupture of the bladder; but in this case the diagnosis of ruptured tubal pregnancy was immediately agreed to. By percussion intra-abdominal fluid was diagnosed; this dulness was slowly movable with change of position. This is something I have noticed in other cases of intra-abdominal hemorrhage, and is due to the slow shifting of the blood that is thick and clotted.

On vaginal examination no mass could be felt on either side of the uterus, but blood clot could be found breaking down under the finger when it was pressed against the bulging cul-de-sac of Douglas. There was no time to be lost. After a hurried consultation the husband agreed that his wife should be immediately removed to the hospital. The hospital authorities were telephoned to by the doctor, while, with the assistance of the husband and the cabman, we carried the patient out, wrapped in the bedding. I was afraid that she might not live until the hospital was reached.

Patient was immediately prepared for operation. Ether was administered with the greatest of care. As she was pulseless at the wrist this was no easy task, and as small a quantity was used as possible—scarcely more than enough to deaden the pain of the incision through the skin. She was so collapsed that she seemed scarcely sensible of pain.

The abdomen was found full of blood. The fingers were passed down to the left tube and a slight roughness of the surface could be felt. This will be readily understood by reference to the plate. They were then passed to the right tube; no roughness could be felt. It was therefore decided that rupture must be through the left tube, although the gestation sac must be extremely small. The tube was drawn up through the mass of blood and finally inspected. It was rapidly ligated and removed together with the ovary. The right side was not interfered with. Blood was washed out by my assistant while I placed the sutures, a drainage tube placed, and the wound closed. I never made my fingers fly quicker; only a few minutes were consumed by the operation, and the patient was ready for removal from the table.

The husband was advised to remain all night, for fear that the patient might succumb at any moment. Frequent saline injections were given per rectum. Hypodermatics of digitalis, strychnia, and brandy were given every hour. She gradually began to mend. Convalescence was somewhat slow but satisfactory. She was discharged from the hospital in four weeks.

The illustration shows the left tube and ovary. The left tube has a small perforation near the uterine end. The ectopic gestation was no larger than an ordinary white bean, so that the rupture in this case must have occurred very early. I have already, in a former number of this JOURNAL, published a case of very early rupture of an ectopic gestation. Owing to the fact that we waited in that case for the patient to rally,

the case terminated fatally. I learned a lesson on that occasion, and made up my mind to proceed exactly as I have, perhaps somewhat minutely, outlined in the preceding sketch. The books have stated that we should wait for the patient to rally, but to my mind this is utter nonsense. We would scarcely wait for a patient to rally when bleeding rapidly to death from a rupture of the femoral artery, and there is certainly no more indication for delay when the hemorrhage is intra-abdominal.

481 SHERBOURNE STREET.

STILLBIRTH.¹

BY

GEORGE BYRD HARRISON, M.D.,
Washington, D. C.

To the subject of this address, viz., "Stillbirth," I have been led to ask your attention from a genuine conviction of its real importance and of our moral and professional obligation to consider it more closely and carefully than has hitherto been our wont. Had I, however, fully realized in how much perplexity and uncertainty the study of its simplest problems is involved, and how futile the elaboration of them has heretofore been, I would have been almost tempted to wish that I myself had been "stillborn" before attempting to discuss even a few of the most prominent features of the subject. At any rate, I promise to spare you and be very brief, for it is a matter upon which I cannot afford to be either lengthy or dogmatic.

The mortality of intrauterine life is greater than that of any other period of human existence, much greater than of infancy, childhood, adolescence, or mature age. In this our own city the records of the Health Office show, for a period of twelve years ending with the last census year, an average of over eleven stillbirths per one hundred labors. When we consider how small a proportion of fetal deaths is returned in comparison even with the number of live births reported, we shall appreciate how enormous is the actual list of these untoward events. An eminent

¹ President's annual address, delivered at the meeting of the Washington Obstetrical and Gynecological Society of October 2d, 1896.

obstetrical authority has recently estimated that one abortion occurs for every five labors; and he has been probably exceedingly conservative in this calculation.

Many of the causes which underlie such cases of stillbirth as are referable to the domain of pathology, leaving out of view all those which are induced accidentally, justifiably, or criminally, are well known. (I say "many," for all will appreciate that a full list is impossible, as it would embrace maternal and paternal diseases, to say nothing of conditions incidental to deviation from the norm in the physiological processes and structures of fetal growth.) Each author upon reproduction enumerates those with which he is familiar; one, as it were, in a sense, supplementing the list of the other, but as frequently guilty of omission as addition. So far as I know, however, no reliable systematic arrangement of the commoner causes, in order of frequency, has been arrived at.

No one, of course, doubts that the ubiquitous monster, syphilis, is an easy leader in the etiological race, but by how many lengths it is impossible, in the present state of our knowledge, to say with accuracy. Public vital statistics are of almost no use in our researches in this direction. In the last census year, however, ending May 31st, 1890, the health reports of some of our cities were harmonized—*i.e.*, the statistical years being different in each, the clerical force of the national office brought the data within similar limits, so that some sort of comparison could be instituted. I have succeeded in getting the comparative returns of only six great Eastern cities—New York, Brooklyn, Boston, Philadelphia, Baltimore, and Washington—and of these only in reference to a few items of interest. While the sources of error and inaccuracy in such returns are palpable, they undoubtedly possess a certain degree of value, and in process of time may be expected to contribute very largely to our actual information. From the reports referred to we ascertain that during the census year there occurred in the cities of Boston and Philadelphia, per 100,000 of population, 134.68 and 138.21 stillbirths respectively. In the latter city, Philadelphia, the records for six years previous showed an average of 117.68 per 100,000 annually. Unfortunately, in Boston the statistics extend no further back than the census year. In both cities the proportion for the colored population, as might be expected, was much greater than for the white. This disproportion of colored stillbirths to white accounts for the fact that for the same year Baltimore returned, on the

same scale, only 194.15, to 224.16 in the District of Columbia—the fact being that in Washington the number was actually less for the white population than in her sister city, Baltimore, but much larger for the colored. The great cities of New York and Brooklyn, with their large immigrant influx, might naturally be expected to exhibit heavily; and such is the case, especially in New York, that city showing for the census year 217.91, and for the six years previous 225.41 per annum, per 100,000; Brooklyn, for the census year 165.31, and for the six-year period 179.01 per annum. Here an anomaly presents itself: New York returning more for colored than white, Brooklyn *vice versa*—the most plausible explanation being that the colored residents of Brooklyn, the quieter city, would naturally represent a better class of that excitement-seeking race.

The records of (it is to be regretted, only three of) these large cities have been so arranged and compiled as to show a percentage far more useful and instructive—viz., the proportion of stillbirths per 100,000 women of the child-bearing age (15 to 45), with the nativity of those mothers. I have constructed a comparative table of these three (Boston, New York, and Brooklyn), which I am sure will prove of interest to you:

PER 100,000 MOTHERS. 15 TO 45.

Nativity.	Boston.		New York.		Brooklyn.	
	White.	Colored.	White.	Colored.	White.	Colored.
	463.14	765.20	773.22	850.32	619.58	290.36
United States.....	608.06	....	1,376.12	....	1,036.03	....
England and Wales ..	392.41	....	579.28	....	234.88	....
Ireland.....	292.80	....	356.51	....	288.22	....
Scotland.....	358.04	....	287.80	....	336.96	....
France.....	418.41	....	561.12	....	231.12	....
Germany.....	344.20	....	539.92	....	549.66	....
Russia and Poland..	1,086.96	....	1,164.51	....	2,690.58	....
Canada.....	485.22	....	658.35	....	392.93	....
Scandinavia.....	597.50	....	585.06	....	448.43	....
Hungary.....	1,694.92	....	1,489.59	....	386.10	....
Bohemia.....	2,173.91	....	1,064.46	....	No report.	....
Italy.....	1,233.67	....	2,059.74	....	1,665.99	....
Other foreign coun- tries.....	495.66	....	770.12	....	175.75	....

This applies to the census year, but does not describe the “six-year period.” The preponderance of stillbirths amongst natives

of Eastern Europe and of Italy, as exhibited in this table, is very remarkable; while the proportion in Americans born in the United States and Canada is astonishingly large, that of French, Germans, and British Islanders being exceedingly small by comparison. The low record for those of Irish birth is very noticeable and noteworthy.

The relative harmony and consistency of the figures returned by these three great masses of humanity, "gathered of every kind," points to something more than mere coincidence. Granted that the tenement districts of the great cities are crowded with representatives of precisely these countries which chiefly swell the lists under consideration, and that their squalor and misery contribute largely to the total results, what explanation can we give for the fact that natives of our own land, supposed to know how to care for themselves and to have acquired better facilities for so doing, are found to occupy so conspicuous a place in the "upper third" of statistics of this character? If the facts be not as indicated we should bestir ourselves to accumulate more evidence, so as to establish the truth in our favor.

Realizing that some sort of order of precedence might be formulated for the more ordinary causes of stillbirth cases as reported to these various health offices, I recently addressed a letter to the respective bureaus of the six cities named, asking for the relative number of fetal deaths attributed by the certificates returned for the census year to each of the various causes specified therein. To this circular letter I received prompt and courteous replies from all the offices with the exception of Baltimore. A second application to that city shared the same fate as the first.

You observe that from our own Health Department alone is there a scintilla of information to be derived. In all the other communities interrogated the question why the vital spark has left this horde of human conception in such untimely fashion is absolutely ignored. However imperfect the effort, we have reason to congratulate ourselves that the health authorities of this city are earnestly seeking a cause for every stillbirth occurring in our midst.¹ We have in this at least a basis and starting point for investigation on a much more extensive and thorough scale. A careful scrutiny of the facts and figures presented is not flattering to professional pride, however. In the large majority of cases conditions resulting from disease

¹ Beginning with Health Officer Townsend.

are alleged as causes rather than the diseases themselves ; out of 282 certificates given by physicians, only *four* fetal deaths are attributed to syphilis.

It is, then, apparent that under prevalent methods (which really amount to no methods at all) the records of health offices at present give small promise of increasing to any material extent our scientific knowledge of this exceedingly valuable subject. Public returns call for and involve personal identification, and it is not compatible with professional honor, when disclosing the whole truth necessitates betrayal of sacred confidences, to make a thoroughly candid report. We must devise a better plan of systematic inquiry. It would seem that no more appropriate or feasible work than this could be undertaken by a Society like ours. Our membership is large enough for comprehensive observation, and so select as to insure faithful and conscientious records based upon actually scientific research. Every important hospital of this great city—notably those engaged in obstetrical and gynecological work—is represented in our membership. Our opportunities for minute pathological investigation are unequalled in the land, and the same is true as to literary research. The exceedingly important point may be added that here the most complete work can be accomplished without expense to the individual investigator. The subject fairly “bristles” with questions of interest and value. For example :

In spite of our great progress in syphilology, the relation to our subject of that dread scourge (which is loosely alleged to be responsible for five-sixths of all fetal deaths) has been by no means thoroughly developed. There are many questions yet unsettled, though of bed-rock importance. The possibility of infection of the fetus, without implication or intervention of the maternal system, through the spermatie particle alone, is denied by some very able and prominent observers. The date during pregnancy at which the disease acquired by the mother in acute form is no longer capable of affecting the fetus in utero, has not yet been ascertained, nor yet the actual proportion of deaths in relation to the period of intrauterine life at which infection takes place. Again, the evidences of syphilis in the dead-born and its appendages are not exhaustively taught, nor always appreciated by us. Thanks to modern gynecology, those subacute or chronic conditions of the endometrium which formerly swelled the list of “habitual abortions” are now recognized and relieved beforehand in very many instances.

Fatty degeneration of the placenta, which is so often present in premature births (and undoubtedly in many instances has causative influence), is almost universally considered secondary to, and consecutive upon, fibroid change. But we may be pardoned for daring to question this. Why may not a condition of the mother which is expressed during gestation by undue deposition of adipose in her various tissues be shared by the fetus in utero? The possibility of this occurring—*i.e.*, of fatty placenta being of primary rather than secondary origin—has been suggested to me in the case of one of my own patients quite recently; and I have found that others agree with me in entertaining this hesitancy to accept the usual verdict.

The law, if such there be, which regulates the permeability of the materno-fetal septa by the respective germs of the various diseases attributable to microbes, is as yet a sealed book. It is certain that some appear to pass with great ease from mother to fetus, others with more or less difficulty. The germ of tuberculosis, for example, we have reason to believe, does occasionally cross the boundary, but very unusually. Eighteen months ago a patient of my own (multipara) gave birth to a well-formed, well-nourished infant (dead) within a few days of term. The mother was far gone with tuberculosis and died in about six weeks. I got permission to examine this fetus, and the autopsy and minute inspection were made for me by Dr. Charles L. Minor, whom you all know as an accomplished medical man and bacteriologist. His report was absolutely negative. Yet only quite recently have cases been detailed before our own Medical Society in which the bacilli were found beyond the possibility of a doubt. These contrary instances are but illustrations of common experience amongst bacteriologists and minute pathologists.

The influence of malaria in inducing premature birth and fetal death is well known, yet the absence of scientific and carefully noted observations is very conspicuous. The accepted germ, being of plasmodial character, might be expected to wander actively and readily, and such seems to be the case. Its abortifacient influence may be exerted by the specific poison directly, or by hyperpyrexia, or by the usual remedy employed for its arrest—*viz.*, quinine. Now, although we have the sanction of Tarnier to use this drug in all cases, inasmuch as the disease unconquered will probably do the work of emptying the womb if we do *not* employ it, the question admits of profitable discussion. If the salts of cinchona were alone efficacious

in this disease the theory would stand. But such (providentially) is not the case. Nature rarely leaves her creations necessarily unprotected. There are other agents which suffice to kill the malarial poisoner, whatever he may be. The fields and forests of our own vicinity contain several trees and plants abounding in antimalarial properties. The common mullein will sometimes succeed when quinia does not, "and there are others." The laity are in our day instructed often beyond what is convenient. They know this property of quinia as well as we do, and a physician is liable to criticism, just or unjust, whose patient aborts after its use. One year ago I had the satisfaction of bringing one through safely within six weeks of term by the use of cinchonidia, which very probably has the same objectionable properties as quinia, only without the bad reputation of that drug.

I suggest these few points merely to illustrate the vast field for useful discussion which the theme presents. They are but a few out of the very many which will suggest themselves to any one who will give the matter appropriate attention. In an age when a large proportion of the women are unwilling to bear children and cheerfully resort to all sorts of infernal methods to avoid doing so, and when a great number of those who bear them refuse to give them the chances for life which God designs, there is surely no higher obligation laid upon us physicians than to use every effort for the conservation of human life, whether it be ante- or post-natal.

1223 CONNECTICUT AVENUE.

POST-OPERATIVE HEMORRHAGE FROM SLIPPING OF THE
LIGATURE AFTER REMOVAL OF DISEASED TUBES
AND OVARIES;
AND HOW TO PREVENT IT.

BY

A. LAPHORN SMITH, B.A., M.D., M.R.C.S. Eng.,

Fellow of the Obstetrical Society of London and of the American Gynecological Society;
Gynecologist to the Montreal Dispensary and to the Western Hospital; Surgeon-
in-Chief of the Samaritan Hospital for Women, and Professor of Clinical
Gynecology in Bishop's College, Montreal, Canada.

THIS is one of the most appalling accidents which the abdominal surgeon has to deal with in the after-treatment of abdominal sections. The operation may have been a perfectly safe and simple one; the patient may have left the table with

a pulse of 80; her temperature has been normal for twelve or twenty-four hours; there may have been little or no vomiting; the patient and her friends have been assured of the almost certain prospect of recovery—when in an hour's time all is changed; the operator is hastily summoned by the nurse, and the patient is found to be in a condition of collapse. Her face is pale and anxious, a cold and clammy perspiration bathes her brow, the extremities are cold, and the pulse is fluttering at the rate of 140 or even more. Now comes the anxious thought as to what it is best to do; but before deciding that he must be sure as to what is the cause of the sudden change which has come over the scene. Two spectres haunt his mind, one little less terrible than the other—the demon of sepsis and the gaunt image of abdominal hemorrhage. That I may be able to throw some light on the diagnosis, and be of some help to others who may have to go through the mental struggle which I have gone through more than once myself, I shall say a few words as to the diagnosis between these two conditions.

When shock is present it is always and only while the patient is on the table or soon after; and if she does not die, and ordinary means of restoring the circulation and raising the temperature which has fallen below normal have been employed, her condition will steadily improve. Not so with sepsis and post-operative hemorrhage. In both these conditions the patient leaves the table in a favorable condition, and it is only in from a few hours to a few days that either of them appears. The safest, and indeed the only, guide by which we can recognize concealed hemorrhage is the pulse, and especially sudden changes in it. The patient who goes off the table with a pulse of 120 to 190 is suffering either from real shock due to the irritation of the sympathetic nerve, or, what is more often the case, from what is improperly called shock—namely, loss of blood. During the operation more blood is sometimes wiped away with sponges than the operator himself fully realizes; and as a result the arteries are so little filled with blood that, on the one hand, the heart has little obstruction to overcome in driving the blood into them and so becomes faster, while, on the other, the pressure in the coronary arteries themselves, from which the heart mostly derives its strength, is so low that little blood is forced into them, and the heart beats become weaker and weaker because they are not fed.

In the former condition the application of heat to the extremities and body, and the hypodermatic injection of

one twentieth of a grain of strychnine and one-quarter of a grain of morphine, together will generally rapidly counteract the condition of the sympathetic nerve ; while, in the latter, the filling of the abdominal cavity with normal salt solution, as well as the injection of one or two pints of salt solution by the rectum, at the temperature of the blood, and from a fountain syringe only slightly elevated above the patient's level, or, better still, the intravenous injection of two or three pints of normal salt solution into the basilic vein, will generally restore the arterial tension which is absolutely necessary for the working of the heart. Not so, however, with post-operative hemorrhage due to the slipping of the ligature from the ovarian or other important artery : the pulse, which was slow and fairly strong, suddenly bounds upward as the out-pour of blood from the cut vessel quickly empties the arterial system, or at least lowers its tension until the pulse at the wrist almost disappears. The patient sighs and gasps for breath and tosses restlessly about ; and if this condition comes on twelve to twenty-four, or even rarely thirty-six, hours after the operation, we may be sure that this accident has befallen her. Whether there will be any rise of temperature will depend entirely upon the size of the vessel and the rapidity with which the hemorrhage has taken place. In a similar condition—namely, the rupture of tubal pregnancy—when the rent is small we find that the hemorrhage takes place slowly and that it sets up an irritation in the peritoneal cavity, as though it were a foreign body ; and that the peritoneum endeavors to enclose it or wall it off from the general peritoneal cavity by throwing out a wall of organized lymph : and that subsequently the peritoneum will do its best to digest the clot. This process of local peritonitis is accompanied by a rise of temperature. But when the hemorrhage takes place suddenly in considerable quantity, as from the slipping of a ligature from the ovarian or uterine artery, there is no time nor vitality for this inflammatory process to take place ; on the contrary, the sudden pouring of the large quantity of blood into the peritoneal cavity acts as though the abdomen received a blow, and in that case there is a sudden fall of temperature. The patient falls unconscious, deathly pale, the pulse disappears : and unless she recovers and lives for some days there will be no attempt to absorb and wall off the fluid. Twice have I seen the abdomen opened in such a case of ruptured tubal pregnancy, where, on the first incision through the peritoneum, the

bright red blood spurted forth; and twice I have seen the patients saved by an immediate abdominal section and removal of the ruptured bleeding tube. Five times have I seen the other condition of Nature walling off the blood and forming what is called an intraperitoneal hematocoele. In these latter cases there is a gradual rise of temperature, so that a falling temperature with a fast pulse generally means that the hemorrhage is great; while a fast pulse with a rise of temperature indicates that the hemorrhage is going on more slowly, always supposing the other symptoms of hemorrhage to be present. Sepsis, on the contrary, comes on later, the rise in the pulse rate is much more gradual, and the vomiting of greenish and eventually coffee-ground material makes its appearance. Any one who has lost a few cases from each of these two conditions will generally be able to make the diagnosis; although many others whom I have consulted before writing these lines admit that it is one of the most difficult problems that they have ever had to solve, to say whether a fast pulse and rise of temperature were due to sepsis or to post-operative hemorrhage. Martin, of Berlin, relates a case in which the patient presented all the appearances above described, and he had almost decided to reopen the abdomen, small as the chances of the patient's recovery would have been made thereby, when, by the aid of stimulants, her condition improved and next day she began passing the brown urine indicative of carbolic-acid poisoning. Fry, of Washington, at the meeting of the American Gynecological Society in 1896, read an interesting paper, which elicited a valuable discussion, on a case of post-operative hemorrhage with rising temperature, in which he was dissuaded from reopening the abdomen because he had always understood that hemorrhage was accompanied with falling temperature; and it was the experience of others who spoke that under certain circumstances, such as I have above described, the temperature may go up with the pulse when the hemorrhage is taking place slowly enough to give the peritoneum time to try to wall it off.

I might have saved two or three of my cases if I had known at the time how to recognize secondary abdominal hemorrhage and if I had had the courage to act upon that knowledge promptly; and several of my colleagues have assured me that they have had the same experience. On the other hand, one case of post-operative hemorrhage which recovered would, I

fear, have died if I had submitted her to the performance of another operation in her then exhausted condition.

In one of my cases, after an ordinary and not at all difficult removal of a hydrosalpinx and diseased ovaries of both sides, the patient went off the table in splendid condition. I saw her again that evening and all was well; but toward the early morning she foolishly raised herself to take something from the table near her, when she felt something inside give way and fell back fainting on the bed. The nurse was promptly called by the other patients in the ward, and when she came she saw at once that some terrible disaster had occurred. I was hastily summoned, only to find her, as I then thought, beyond human aid; although if I were to have the same case to deal with again I would follow the surgical maxim, When there is hemorrhage find the artery and tie it at once. The patient died a few hours afterward, and, as no post-mortem was allowed, I am unable to say positively that such was the true condition of affairs, but I have no doubt about it myself.

A few years later I removed an unusually large ovarian cyst adherent to the liver and to the abdominal walls. The oozing from the very large surface was profuse, but was quickly arrested by the application of very hot sponges and very hot water with which the abdominal cavity was filled. The pedicle had been tied in many segments, owing to its great width, being finally encircled with a ligature *en masse*. The patient went off the table with a pulse considerably under 100, although not very full, and with very little shock. Soon the drainage tube, which I very frequently used in those days, revealed that bright red hemorrhage was going on: but I was misled as to the amount, only a few ounces in twenty-four hours being removed. I hoped from hour to hour that this would stop, as I had such a dread of a second operation, most of the cases of which I had heard having died soon after. When, however, at the end of twenty-four hours the pulse was getting faster, 130 to 140, I called a consultation of the staff, and late that night, by their unanimous advice, I reopened the abdomen to find a little jet of blood, not much bigger than a bristle, spurting from a tear in the broad ligament between two ligatures and below the ligature *en masse*, and which at the time had escaped our attention. This would not have happened, I might say, if I had then known of the great advantage of the Trendelenburg posture, which, by keeping the intestines out of the road, enables us to closely scan every spot in the pelvic cavity. Many cases

I have had like this since then, but have always been able to see and close every bleeding point before lowering the patient to the horizontal position. The second opening in the abdomen and the tying of the artery were done too late; the patient died next day.

A few years ago a bright and charming woman, a sister of one of our leading physicians, was strongly advised to have her ovaries removed in order to save her from the suffering at her menstrual periods. The operation was performed by one of the experts of the United States, in whose hands abdominal section has almost no death rate. She submitted to the ordeal fearlessly and with hope, which, as far as the operation was concerned, was fully realized. She soon awoke from the anesthetic, was free from pain, conversed cheerfully with the nurses and later with her friends, when all of a sudden she uttered a cry and became unconscious. The nurse found the pulse had gone up to 160. The surgeon was called, but could not believe that such an accident as the slipping of the ligature could have occurred, and a few hours later she painlessly passed away. At the autopsy the abdomen was found filled with blood.

Two years ago I removed a large fibroid which completely filled the pelvis, so that, after tying the uterine arteries with catgut as far away from the tumor as I could, I was obliged, on cutting out the tumor, to leave much shorter stumps than I would have liked. The operation was exceedingly difficult, but almost no blood was lost. I examined the ligatures and found them apparently safe; and then the peritoneal flaps were sewn up over them, the vagina having previously been firmly closed. The patient went off the table in perfect condition; the intestines had not been exposed, there was no shock, and the pulse on the morning after the operation was only 80. The patient, when I made my rounds, said it was a shame to keep her from eating when she felt so well; and I pleasantly told her what she would have to eat on the third and fourth and fifth days. I had hardly time to complete my rounds and to sit down to my desk when the nurse called me to come up again, and in that brief time all my hopes for a speedy recovery were dashed to the ground. Her pulse was 140 and her face was drawn and anxious. I at once gave her an enema of normal salt solution, when the pulse came down; after giving her a few ounces of brandy and water by the mouth, it went up again and the temperature began to fall. Within a few hours the

patient was dead from the slipping of the catgut ligature from the short stump of the uterine artery.

Last August a patient who had been suffering for years from dysmenorrhea applied to me for help. I found the uterus retroverted and so bound down by adhesions that no effort which I thought it safe to make, either with my fingers or the sound, was sufficient to aid me to lift it from its faulty position. I advised ventrofixation, but asked for her leave to remove the ovaries and tubes if I found them much diseased. This, unfortunately, I did; for, after detaching the uterus and its appendages and Douglas' cul-de-sac, the ovaries were so torn that I thought it wiser to remove them. The tubes were thick and friable, and cut through on one side while I was tying them; on the other side, although I took plenty of time and drew the silk ligature taut several times, it did not cut through. The appendages were removed and the uterus fastened to the abdominal wall. I was perfectly sure of an uninterrupted recovery, when, about twenty-four hours after the operation, some bleeding from the wound took place, and on removing the dressing it was found to be saturated with blood, which poured steadily from the lower angle of the wound. Thinking that the bleeding might be coming from a little artery which had escaped attention, I inserted a ligature underneath the angle and tightened it up, without further diminishing the flow of blood. The temperature also rose somewhat, and, as the patient's face was blanching, I felt sure that the cause of the trouble was an accidental hemorrhage; and an examination by the vagina revealed a large, soft, bulging mass projecting into the canal.

While I was very anxious about this case and almost decided to open the abdomen, my friend Dr. Cushing arrived to attend the meeting of the Canada Medical Association, and on my urgent request he kindly left the festive board to help me with his counsel in my trouble. On going into the case carefully we found some suppuration in the wound and removed some stitches. Dr. Cushing thought that this might explain the rapid pulse and the slight rise of temperature, although on examining per vaginam he was as convinced as I was that there was a hemocele. We agreed to resort to the usual means, and, if she were not better on the morrow, to reopen the abdomen. By using repeated doses of strychnine and brandy hypodermatically—for she could keep nothing by the mouth—she rallied somewhat, and after going through a week or ten days

of great anxiety the bleeding stopped, but it was not until a month later that the hematocele became absorbed. Under a good tonic treatment this patient is now in excellent health, which I doubt would have been the case if I had operated. I had shown Dr. Cushing, a year before, eight cases of laparotomy in my private hospital with primary union of the wound, and he was rather pleased, he said, to see that others had a suppurating case occasionally as well as he.

Granted, then, that the slipping of the ligature is an appalling disaster, let us now see if there is any means of preventing its occurrence. Until a few days ago I had thought that I had discovered such a means, because I have never seen it employed by any of the European or American operators whose work I have had the pleasure of seeing. But on looking over the matter in many different authors I see the suggestion which I have now been carrying out in my last half-dozen cases very briefly noticed. My suggestion is to spend one extra minute of time in throwing a medium silk ligature around the ovarian artery, as it can be easily felt running along the upper border of the broad ligament about an inch from the pelvic wall, before even proceeding to ligate the pedicle composed of the ovary and the tube. As an assistant holds the latter in one hand while he holds the abdominal incision open with the other, it requires but a moment to pass a curved needle, with the loop threaded with medium-sized silk, around the ovarian artery, and to tie it tight.

In doing this I would urge that the thread be crossed twice on the first knot and once on the second; then we proceed to transfix the pedicle with double threads, which are crossed upon each other, and then tied securely on the one side under the ovary and on the other at the uterine end of the tube. The ends of this latter are then passed round under the knot of the ovarian pedicle and securely tied again *en masse*. If this be done I feel sure that secondary hemorrhage, after the removal of the appendages at least, will be impossible. It would take very little more time to put a similar ligature around the little branch of the ovarian artery which anastomoses with the uterine near the cornu.

Only a few days ago, in my most recent case, the tubes were very thick and there was a good deal of infiltration of the broad-ligament wall, the intestines being adherent to the latter over a large area. The precaution above suggested had fortunately been taken, for, just as I was about to close the

abdomen, I saw the end of the broad ligament slip out of the ligature, and with it the end of the ovarian artery, as large as a goose quill. But, to my great relief, this remained quite dry, the only blood coming from a very tiny branch from the uterine side. Even this little vessel would have been controlled if I had placed a similar ligature on the uterine side as I had done on the pelvic side of the broad ligament.

When I look back on my cases I can remember two or three narrow escapes which I have had from the shrinking of the pedicle allowing what was once an extremely tight ligature to become quite loose and permitting the dragged-up broad ligament to slip out. In each of these cases there was a rush of blood which filled the pelvis, but which was with some little trouble in each case arrested, so that the patients made good recoveries, although their operations had been doubled in length of time by this accident. I intend on all future occasions to adopt this simple precaution, which will at least set my mind at rest as far as secondary hemorrhage is concerned, no matter what other accidents may have to be attended to.

250 BISHOP STREET.

TREATMENT OF PUS IN THE PELVIS.¹

BY

WILLIAM A. B. SELLMAN, M.D.,

Professor of Diseases of Women. Baltimore University,
Baltimore, Md.

I SHALL not enter into the etiology, causes, or symptoms of pus in the pelvis, but will confine my remarks to the treatment. In the first place, we all agree that the object is to free the patient from the presence of pus. Quoting from a recent article upon this subject: "In the serous and fibrinous inflammations the exudation accumulates in the interstices of the tissue, or, if it cannot be contained in this, it passes to the surface or into the natural cavities of the body, always following the path of least resistance. In this form the exudation in itself seems to produce no injury to the tissue. The tissue may be injured by having its nutrition interfered with by compression of vessels produced by the exudation, and very extensive necrosis may be produced in this way; but the exudation in itself produces

¹Read before the Gynecological and Obstetrical Society of Baltimore, December 8th, 1896.

no injurious action on the tissues with which it is in contact. The purulent inflammation is different. In this there is not only destruction of cells by the exudation surrounding them, but the intercellular substance itself is destroyed and dissolved by the exudation. The exudation and the softened and destroyed tissue combine to form the abscess. The dissolution of the intercellular substance takes place more easily in the loose areolar tissue. Not only is this solvent action of the exudation exerted on the intercellular substance, but fibrin also, when any is present, is dissolved in it." We must not lose sight of the fact that the necrosis of the pelvic tissues is often provoked and maintained by a general or constitutional debility. Any organ damaged by repeated congestion is extremely susceptible to necrosis, its circulation is inefficient, there is blood stasis, and as a result we have material retained in the tissues which should have been carried out of them.

If we see our case before the pus has actually formed, the use of heat is called for. Cloths wrung out in hot water and reapplied before they become chilled give better results than any other treatment at this stage.

When pus has formed our duty is to evacuate it. If the fluid is located near the surface of the abdominal walls and we do not anticipate meeting serious obstacles, we should secure drainage through these walls by section. On the other hand, if our patient has had an old peritonitis or cellulitis and we suspect that the tissues are bound together by bands of lymph, the probabilities are that the vagina affords us the safer channel. Judgment must be exercised in each individual case; no rule can be laid down and followed to use one channel for drainage alone.

I will illustrate by two cases. Case I. is a patient reported to me as having suffered from typhoid fever for five weeks. Upon vaginal examination I found a large, tender swelling upon the left side of the pelvis. Fluctuation was clear. The physician reported that the patient had an evening elevation of temperature to 104° or 105° . This had persisted for four weeks. We decided that there was pus in the broad ligament and that it must be evacuated. An incision into the posterior cul-de-sac was followed by the escape of six ounces of very offensive pus. Passing two fingers into the opening and reaching up as high as possible, another fluctuating mass was felt which was diagnosed as a collection in the Fallopian tube. A large dull curette was passed, used as an extension to the fingers, and the

tube opened. At least two pints of putrid material were discharged. The cavity was then washed out with a solution of carbolic acid 1 : 80. A strip of iodoform gauze was carried up as high as possible. The patient's temperature that evening was 99°. The operation was performed one week ago to-day and there has been no further elevation. The constitutional treatment is directed to building up the vitality, which was very low at time of operation. We continue to wash the pelvic cavity each day with the carbolized solution and pack the tract with iodoform gauze.

Case II. also presented a history of long-continued elevation of temperature. Physician reported that for three weeks she had an evening elevation of from 101° to 104°. Upon examination a tender, fluctuating mass was felt at the left Fallopian tube. Abdominal section was done and the tube reached without difficulty. An opening was made, followed by the escape of six ounces of fetid pus. After thoroughly washing the cavity tincture of iodine was swabbed into the pus pocket. A soft-rubber tube was introduced for drainage and the abdominal wound closed. After ten days, as evidences of suppuration had almost entirely disappeared, the tube was removed. Patient made an excellent recovery.

In cases where the collection of pus is at the vermiform appendix an incision through the abdominal wall is required. Collections of pus above the pelvic brim as a rule should be evacuated through the wall of the abdomen. Pus collecting or gravitating posteriorly to the uterus and between the uterus and rectum can be reached with greatest safety through the vagina. This is also the best channel to reach pus between the uterus and bladder. The evacuation of the purulent material by aspiration I do not indorse, as even after injecting stimulating medication into the cavity of the pus pocket there is likely to be a recurrence of the trouble.

What I desire to insist upon is that drainage be secured at an early stage of the suppuration, before the vitality of the patient has been depressed by absorption of the septic material. We would make a point of keeping the bowels active by the administration of saline laxatives, and use of quinine and salol in large doses to overcome the effect of sepsis. The administration of moderate doses of Dover's powder to control pain or a restless condition is frequently required. Diet should be liquid.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of April 15th, 1897.

J. M. BALDY, M.D., *in the Chair.*

DR. JOHN B. SHOBER reported

A CASE OF ECLAMPSIA SUCCESSFULLY TREATED WITH
ENORMOUS DOSES OF VERATRUM VIRIDE.¹

DR. JOHN C. DA COSTA presented a paper upon

A CASE OF PYEMIA IN A YOUNG INFANT.²

DR. B. C. HIRST.—If I were called upon to decide the point of infection in this case, if such a thing were possible, I should say it was most likely in the lungs. I have seen recently a similar case which ran a much more rapid course. There was an inspiration pneumonia, with consolidation of that portion of the lung supplied by a large branch of the bronchus which was obliterated by an inhaled blood clot. Following this consolidation there was infection of the inflamed and consolidated area by the staphylococcus aureus. There developed then an infection of the pleura resulting in an abscess of the pleural cavity, from which after death pure cultures of the staphylococcus were made. There was also widespread infection of the system, and the child died of extensive pyemia and profound septic intoxication. This case shows the possibility of the infection beginning in the lungs, and I should say, in Dr. Da Costa's case, that the absence of signs of infection about the umbilicus and the original pulmonary symptoms lend strength to the theory of primary lung infection. The late development of the symptoms I suppose might be explained by the small area of lung first affected. I have seen a case in which consolidation of a portion of the lung no bigger than my thumb nail proved fatal, the symptoms preceding death being septic in character. I think, therefore, it is conceivable that a small colony of staphylococci might be established in a limited area of the lung where they might grow very slowly until they had taken on a certain amount of vigor, when their development would proceed more rapidly and they might spread throughout the whole system by means of the circulatory and lymphatic systems.

Whatever the explanation, these cases of sepsis in the new-

¹ See original article, p. 788.

² See original article, p. 774.

born are very interesting to study. They are luckily rare and are most rebellious to treatment. I have never yet seen recovery in a case of extensive sepsis of the newly-born or very young infant.

DR. W. REYNOLDS WILSON.—The age of the infant is of some significance, the infection developing in this case after two months, the child in the meantime being artificially fed. Both of these points ought to be considered. In new-born infants the chances of infection immediately following labor and during parturition are great, but it seems an extremely rare thing that infection develops. For instance, in manipulations in delivery, as in breech cases where the head is delivered in flexion by introducing the fingers into the child's mouth, the risk of abrasions is extreme. I remember a case in the Philadelphia Hospital, in which Dr. Hirst performed the post mortem, where a branch of the sublingual artery was ruptured and the child had died from hemorrhage. In cases where it requires a great deal of effort to deliver the child—for instance, in the application of the forceps—there is liability of abrasion, and yet healing occurs without suppuration. Also remember the conditions where extravasation is likely to occur, as in cephalhematoma, which very rarely breaks down into suppuration; also the engorgement and glandular swelling of the breasts, mastitis neonatorum, which hardly ever proceeds to suppuration. It looks as if there must be some cause which reduces the powers of resistance in such cases as that reported. This fact is especially pointed in the present instance by the fact that the child was poorly fed.

DR. B. C. HIRST reported

CLINICAL NOTES—TWO CESAREAN SECTIONS, ONE FOR A DERMOID CYST IMPACTED IN THE PELVIS, THE OTHER FOR A FLAT RACHITIC PELVIS AND OVERGROWN CHILD; A CYST OF THE LABIUM REMOVED WITHOUT RUPTURE; A COCCYX EXCISED FOR UNUNITED FRACTURE.¹

DR. C. B. PENROSE.—I agree with Dr. Hirst about the advisability of leaving as much of the coccyx as possible. I think, however, that if the muscular attachments are brought together by suture, after the coccyx has been removed, there will be about as strong a support for the perineum and the pelvic floor as if the coccyx remained in place.

DR. G. E. SHOEMAKER.—In regard to the cyst of the labium, I have never been able to take out such a cyst unruptured in inflammatory or broken down conditions, but I have been able to do so when it was not inflamed. I think only under these circumstances can it be done. There is not as much bleeding as one would expect. I would like to ask whether Dr. Hirst did the extraperitoneal or intraperitoneal operation for the infected uterus.

¹ See original article, p. 790.

DR. J. M. BALDY.—I think Dr. Hirst was perfectly correct in removing only such portion as is diseased or the seat of fracture. It has seemed to me that another objection is, interference not only with muscular attachments, but interference with the ligaments. This portion of pelvis is above all others the main support of the uterus, and we cannot be too particular in leaving it intact wherever possible.

DR. J. M. BALDY presented a

NOTE ON A CASE OF MOVABLE KIDNEY.

There is a point that came to my attention in connection with a case I had to deal with recently that is rather interesting on account of the position the profession has a tendency to take in regard to floating kidneys. I would like to put the case on record with what comments there may be in regard to it for any future use that it may be.

The case was one of an old maid, probably 35 or 38 years of age, slender, pale, of the general appearance of these neurotic old maids. She had been through the hands of an innumerable number of physicians, some of them most excellent men, and some of the men of highest knowledge and reputation in the country. She had almost as endless variety of diagnoses as she had seen physicians and surgeons. Among others she had a diagnosis of aneurism of aorta, disease of the gall bladder (independent of stone). calculus of gall bladder, gastrointestinal chronic disease, floating kidney, and liver disease. Of course ovarian troubles had entered largely as a factor in the diagnosis. She came to me four years ago for examination as to her pelvis, and I had pronounced her healthy. She had recovered from the symptoms which troubled her at that time and had fairly good health for two years.

All her symptoms now (at her second visit) were concentrated around a region above the vermiform appendix below the liver, at the right of the median line and between the median line and kidney. The discomfort was that of pain, sometimes dull, at other times sharp. When asked to locate the pain I noticed that she would stoop over so as to see the spot and then would locate it at a certain ridge in the abdomen. Without looking she could not locate it apparently. She had ordinary stomach troubles, dyspeptic troubles—in short, she had all the troubles you find in highly neurotic women. She had a right kidney which was undoubtedly movable. The kidney projected below the lower free ribs, and it was not at all difficult to take it between the fingers, to squeeze it, and appreciate that it shot out from the grasp upward under the ribs toward the liver. The kidney on the other side was no more movable than you would find in an ordinary case. My own opinion was that the kidney was not sufficiently movable to give rise to the symptoms complained of, although they were not at all unlike those ordinarily attributed to floating kidney. There was no question the kidney was very much more movable than the left kidney, but at the same time in picking it up one could squeeze it and at no time

would she locate or admit that I was giving her any pain or any symptom which she was accustomed to feel or that any of the symptoms that she had were in any way like what I was giving her at the time of manipulating the kidney. The kidney was in such condition as I have seen many kidneys, and have repeatedly thrown out of the category of floating kidneys, or, I might say, a pathological condition. I might say here that I have not a great deal of faith in floating kidneys. In view of the fact of the woman's general condition, for the last one and a half years she had been getting worse (she was a school teacher), she wanted something done, and I proposed that the only thing at all advisable would be to make an exploratory section at such point as would expose the points she had at times complained of pain. She thought the matter over, consulted her physician (who thought it necessary to do something, if for no other reason than to set her mind at rest), and decided to have exploratory operation, fully understanding that in my opinion her suspected organs were all healthy and that nothing would come of the exploration. In fact, she was told plainly that I considered her trouble purely neurotic. If anything was found which would involve any considerable amount of risk to repair she was to come out of ether and decide whether or not a subsequent operation was to be done to correct it.

I made a longitudinal incision about half-way between the median line and the flank, extending from the lower free ribs two and a half inches down. With retractors it was easy to expose most of the viscera. The gall bladder was perfectly healthy to the eye and touch, no indication of stone in any of its ducts. The liver tissue was perfectly healthy and apparently in every way normal. The aorta was in every way normal, as well as could be observed from palpation, which was accurate on account of the thin layer of tissue intervening. The appendix vermiformis was easily brought out of the incision and inspected and found to be absolutely healthy. The kidney was found slightly more movable than I supposed at the examination before the operation. The kidney tissue was absolutely healthy as far as palpation could determine. The fingers were finally with some difficulty passed down from incision into the pelvis, and on the right side an ovary, probably the size of an English walnut, found, three quarters cystic; the other ovary was apparently normal. Of course it was simply a question of choice as to what should be done. Here was a kidney considerably more movable than ordinary condition in the average woman. The question arose, Did this kidney cause the woman's trouble? The fact that the kidney was movable had been fully appreciated and explained to her before operation, and there was nothing to indicate, no single symptom could be elicited by manipulation of the kidney that would lead to belief that it had anything to do with symptoms complained of. I found nothing in the fact that it was slightly more movable than I had thought that would necessitate the operation of nephrorrhaphy. However, her physician thought something ought to be done for the mental effect, at least. Consequently I made a one and a

half inch incision and removed the cystic ovary, and a very small cyst from the other ovary was punctured and emptied, the ovary returned, and the woman put to bed.

The points I particularly want to impress are these: Here was a woman with undoubted floating kidney from the standpoint of those who are talking floating kidneys and operating upon them. Here is a woman in whom not a single symptom of any kind can be elicited by manipulation of kidney or by any other examination which was similar to any symptom from which the woman suffered. And yet the symptoms from which she ordinarily suffered were extremely like those from which patients are presumed to be suffering who are presumed to have floating kidney.

It is not often we have an opportunity to open and satisfy ourselves by an operation of the condition of all the organs of the body as here, where the examination was so readily carried out and the points noted beforehand, and rather confirms me in my past opinion that all kidneys are floating more or less; that the natural condition of the kidney is movable; that a floating kidney is merely a matter of degree, excepting a few in which the movability is excessive. I do not hesitate to place myself on record as being extremely sceptical in regard to this whole subject of floating kidney. The large majority of these symptoms are falsely attributed to the kidney when they can in all human probability be attributed to the general neuroses from which these women suffer. I hoped in the future we might note the results, particularly whether the moral effect of operation would cure the symptoms and give us positive proof that the kidney had not been the cause of trouble in this individual case. Unfortunately the woman developed a double pneumonia and departed this life on the fourth day and spoiled any prospect of that character.

DR. JOHN C. DA COSTA.—Did you examine the ureter in that case?

DR. J. M. BALDY.—I do not remember anything of interest in that region.

DR. JOHN C. DA COSTA.—I have an idea that sometimes these pains which are referred to floating kidney may be due to trouble with the ureter, the thought being induced by my experience with a case of floating kidney. The woman undoubtedly, from description, had needed operation. It was done by one of our Fellows and a beautiful result secured. The kidney, when the woman fell into my hands months afterward, was fixed as firmly as I have ever felt a kidney. She was in extreme distress. The trouble was supposed to be attributable to a bruise she had gotten. I knew there was something more and opened the abdomen. I felt from the pains she had, from the scanty secretion of urine without any pathological changes in it, that there might be trouble with the ureter, and, after opening the abdomen, I broke up adhesions about the ureter, following it as far as I could, with the effect, as soon as recovery took place, of the disappearance of almost

all the pains and with the rather remarkable effect of increase in urination—nearly double amount in the first twenty-four hours after the operation. The urine continued in this large amount, and I think it is a point well worth looking at as to whether adhesions may not have taken place and compressed the ureter and produced some of these pains that are attributed to floating kidney.

DR. G. E. SHOEMAKER.—It is very unfortunate that the patient died, as no further observation can be made. It seems to me in a case of that kind there is a very great probability that the excursions of that kidney were the cause of some of her distress. The kidney is connected with the sympathetic system; it is one of those organs which, when pressed upon or dragged upon, give rise to sickening sensations and peculiar abdominal reflexes, as does the ovary. It is, from displacement of it, possible to have kinks in the ureter and colics of that origin. It, when movable, may be twisted upon its own axis and give rise to very serious symptoms, which disappear on reduction of the dislocation. In certain cases there is no doubt in my mind it gives rise to obscure nervous symptoms. There is seldom acute pain, but a nameless unrest or distress that, when continued through years, more or less wrecks the life. It is analogous to symptoms produced by some cases of complete prolapse of the uterus. Some cases of prolapse do not produce any symptoms at all. Other cases are perfectly miserable when the parts are down, and perfectly comfortable when they are replaced by any method whatever. I am one of those who believe that every movable kidney need not be operated upon. However, I did the operation on both kidneys yesterday. I have two cases on which I have not operated. One, with a hydronephrosis also, a woman, is constantly improving; the other is a woman who can take good care of herself and is fairly comfortable with an abdominal support, and I do not think she requires operation. There are certainly some cases in which operation is better undertaken, however.

JOHN B. SHOBER, *Secretary*.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Meeting of October 2d, 1896.

The President delivered his annual address.¹

Meeting of October 16th, 1896.

The President, GEORGE BYRD HARRISON, M.D., *in the Chair*.

Officers for the ensuing year were elected as follows:

President, George Byrd Harrison, M.D.; *Vice-Presidents*,

¹ See p. 799.

Samuel S. Adams, M.D., George N. Acker, M.D.; *Recording Secretary*, George Wythe Cook, M.D.; *Treasurer*, John van Rensselaer, M.D.; *Corresponding Secretary*, W. Sinclair Bowen, M.D.

Meeting of November 6th, 1896.

Vice-President SAMUEL S. ADAMS, M.D., *in the Chair*.

DR. JOSEPH TABER JOHNSON presented a specimen of

SCIRRHOUS CANCER OF THE BREAST.

DR. I. S. STONE presented a specimen of

FIBROID TUMOR OF THE UTERUS, REMOVED BY BAER'S METHOD.

DR. JOHN VAN RENSSELAER said the gross appearance of the specimen presented by Dr. Joseph Taber Johnson was that of malignancy. He thought Dr. Johnson should have opened up the axilla, as the glands were doubtless involved. One may not be able to detect the glands by external manipulation, yet upon opening the axilla they are found to be enlarged. He did not see the necessity for consuming so much time as Dr. Johnson had said Dr. Halsted took in his operation. The necessity for cleansing the axilla was shown by statistics, though statistics were not always reliable.

DR. WILLIAM P. CARR said the question of removing the axillary glands depended upon the mobility of the tumor. If the tumor was not fixed it was not necessary to remove the glands. Halsted's operation was for advanced cases. When the growth was small, as good results were obtained by simply removing the whole breast as by the more extensive operation. In tumors as large as the one presented the axillary glands are usually involved. The glands sometimes could not be discovered until the axilla was opened. When the cancer is so extensive as to involve the pectoral muscles extensive incisions must be made.

DR. J. W. BOVÉE said there was one line of glands that it was almost impossible to remove; they follow along the internal mammary artery. The *three-year* limit was not a safe one, as cancers may recur even after that period.

DR. JOSEPH TABER JOHNSON said he expected that his operation might be criticised, but he thought it well to discuss such operations occasionally. The tumor was perfectly movable, and the glands did not seem to be involved.

DR. WILLIAM P. CARR read a paper entitled

TREATMENT OF ACUTE SALPINGITIS.¹

DR. JOSEPH TABER JOHNSON said that Dr. Carr had so well

¹ See original article, p. 769.

covered the whole field of the treatment of acute salpingitis that he agreed almost entirely with what he had said. He said that in all cases of gonorrheal or septic endometritis nothing was so necessary as the use of all measures that would tend to prevent salpingitis. With small collections of pus in the tube, where the abdominal end was glued up and the uterine end was patulous, drainage sometimes might take place, but when the uterine end became closed a radical operation was necessary. He agreed that rest and the best nursing should be insisted on. The diet should be full and nutritious. Hot-water douches, to be of any benefit, must be copious and continued for twenty to thirty minutes, getting the constricting effect as seen in the washerwoman's hands. As to local treatment, much manipulation would be dangerous, as the rupture of a pus tube might be disastrous. He indorsed what Dr. Carr had said about opening the sac through the vagina, when it could be done. He did not use a regular drainage tube, as strips of gauze answered admirably, and in some a radical operation was not necessary afterward. A conservative operation was wise in many of these cases, but some do require a subsequent radical operation.

DR. THOMAS E. MCARDLE said that neither of the speakers had referred to tubercular disease as affecting the tubes. He hoped that gentlemen would carefully observe their cases with the view of determining how frequently tubercular disease occurred in the tubes alone. He said the habit of giving morphia in these cases was dangerous and reprehensible.

DR. J. T. KELLEY, JR., said he had expected to hear something about catheterization of the tubes. He had recently curetted the uterus in a case of salpingitis, with the result of a discharge of as much as half an ounce of pus from the tube.

DR. I. S. STONE said he was glad to hear a paper that advocated a line of treatment that was intended to obviate the necessity of surgical operation. He had heard Dr. Forwood say that the best treatment for gonorrhea was to put the patient to bed and keep him there until cured. He thought that if cases of vaginitis in their incipency were put to bed and douches used a cure would result in many cases. He recited a case of gonorrheal infection in which he removed the right tube because of pyosalpinx, and while he had the abdomen open he washed out the left tube by injecting through the fimbriated extremity, the fluid being forced through the tube out through the uterus, the result being most satisfactory. In many cases the pus is not infectious, and irrigation is not as necessary as was formerly supposed. If the pus is infectious it may be let out through the vagina in extreme cases. He was afraid that these conservative sentiments might lead to harm by inducing many physicians to leave pus cavities too long and only employ abdominal section as a last resort.

DR. J. W. BOVÉE said the paper was a clever one. He agreed with Dr. Joseph Taber Johnson as to the danger of too much manipulation by attempts at curetting and drainage. He

would not attempt to curette when the tubes contained pus, unless he was going to do a radical operation. He objected to the use of morphia, but used *small* fly blisters, sometimes as many as half a dozen, across the lower abdomen, changing them from place to place daily. The small blisters were better than large ones. He used suppositories of three-quarters of a grain each of extract of belladonna, hyoscyamus, and cannabis indica. As to evacuating pus through the vagina, he detailed a case treated in that way by another physician; the discharge continued to flow through the vagina for two months, the temperature ranging from 101° to 104°, and the pulse was never below 120. Later a fecal odor to the discharge was noted. Death seemed imminent. He rapidly removed the uterus, together with a large tubal pus sac, through the vagina, and drained, but the woman died. He thought that had a radical operation been done earlier the patient might have been saved. He believed tuberculosis very often passed through the vagina and uterus to reach the peritoneum, and cited a case he had recently operated on as demonstrating this. A young woman, married about three years, was never pregnant and had never menstruated; condition fair, but accumulation of fluid in abdomen. Section showed tubes and ovaries to be parts of tubercular cysts, and peritoneum from bladder to umbilicus studded with tubercles. Removed uterus and appendages and drained through the vagina. She made apparently a perfect recovery.

DR. W. S. BOWEN said he had recently had a case of acute pus tubes which he evacuated through the vagina, using a glass drainage tube, with most satisfactory results.

DR. J. W. BOVÉE said tuberculosis of the tubes was a frequent condition in connection with tuberculosis of the uterus or peritoneum, but was rare as an independent affection. Tuberculosis sometimes disappeared from the vagina and uterus and located in the tubes.

DR. WILLIAM P. CARR said as to curetting and flushing as advised by him in the early stage of acute salpingitis, not much harm could be done, as any adhesions that might exist were of soft lymph and it was not likely there would be much pus. If there was much pus it would be better to do a radical operation. In tuberculosis of the tubes the germ gains entrance through the vagina and uterus. He thought that many cases of peritoneal tuberculosis originated in that way. As to the cases detailed by Dr. Bovée, the radical operation should not have been so long delayed.

TRANSACTIONS OF THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

Meeting of December 8th, 1896.

The President, WILMER BRINTON, M.D., in the Chair.

DRS. J. E. STOKES, T. C. CULLEN, O. G. RAMSAY. and C. E. BRACK were elected to membership.

DR. J. G. CLARK read a paper entitled

SUBMAMMARY INFUSIONS OF SALT SOLUTION IN PRIMARY ANEMIA FROM HEMORRHAGE, IN SHOCK, AND IN SEPTIC INFECTION.¹

DR. J. WHITRIDGE WILLIAMS.—The use of subcutaneous injections of salt solution is somewhat older than would appear from what Dr. Clark has said. So far as I remember, the first reference to it is found in the work of Leopold's assistant some several years ago, and, while it is perhaps new in this country, it has been resorted to with frequency on the other side. I agree with what Dr. Clark has said about its use, and I use it with great benefit in a number of cases. In the field of puerperal infection it is altogether new, and the only reference to that with which I am familiar is that of Bosc, to which he referred. I think it is quite possible that in a certain number of cases we may obtain good results from its use. When we remember that in some of these cases there is a marked interference with the nitrogenous materials that should be excreted from the kidney, it is possible that the elimination of the toxic subjects retained in the blood may take place with more ease after this treatment than if the blood is left in its toxic condition. We all know that puerperal eclampsia is regarded as due to some poison produced in the placenta, or to some interference with excretion that results in carbamic acid poisoning; and I think we might obtain good results in these cases from the infusion, and I look forward to trying it when I have the opportunity. I had an experience the other day that may be of interest to you.

We had a woman enter the hospital, some six weeks or two months ago, in the last week of pregnancy, presenting a stupid condition—whether she was always that way or not we were not able to find out. After being in the hospital a day or so the urine was examined and found to contain very little albumin and few casts. The amount of urea in the blood was

¹ See original article, p. 000.

markedly diminished—only one-fourth as much as under normal circumstances. While debating the question of producing labor she went into spontaneous labor and was delivered of a child by forceps. The condition increased after the birth of the child, more albumin and casts appeared in the urine, the urea markedly diminished in the blood, and I thought it might be well to introduce salt solution to flush out the kidneys. We tried it on three occasions, and an interesting point was that after each injection her temperature would rise suddenly within the few hours about three degrees. This temperature was not a constant occurrence, because we omitted the injection on one or two days and the rise did not occur. What caused it I do not know. The salt solution did my patient no good, and she died at the end of six weeks. The autopsy showed a chronic metritis with absence of all organisms.

DR. J. H. BRANHAM.—In connection with the point Dr. Williams made about the use of salt solution in puerperal eclampsia, there is a very interesting article on that subject in the June number of the *Journal of the American Medical Association*. I have forgotten the name of the reporter, but there are about twenty cases reported with remarkably good results. Some of these cases were very grave, but all recovered, and the recovery is attributed to the use of salt solution in this way. I had occasion to use it recently where I was compelled to produce premature labor, and it worked nicely and the woman recovered promptly, but I could not say that it was due to the salt solution.

DR. W. S. GARDNER.—This case of sepsis after labor reported by Dr. Clark is evidently a case of septic intoxication, and it is in such cases that you would expect good results in salt solutions, if you can get it in any. She had no peritonitis, had she?

DR. CLARK.—No general peritonitis.

DR. GARDNER.—It is one of these cases, then, of septic intoxication, and not infection strictly speaking; and it is the mechanical effect of the solution that is gotten here. I have no doubt that in a considerable number of these cases you might get beneficial results in this way, but in septic infection proper I do not believe it would be of any benefit at all.

DR. W. W. RUSSELL.—I operated on that woman again last summer for hernia, and she had evidently had infection. The uterus was over two and one-half times its normal size, and that was a year after the infusion; so there must have been some infection, and it was not simple absorption from the surface.

DR. L. E. NEALE.—This seems to me an exceedingly interesting subject, and I should like to ask Dr. Clark to give us, in closing, some more explicit directions regarding the apparatus and the stage when it should be used.

DR. JAMES M. CRAIGHILL.—I would like to ask about the injecting instrument—whether in the emergency, if we have

not the instrument, we might use the ordinary fountain syringe with a good big needle.

DR. CLARK.—This case being the first one, I can hardly say at what stage it should be used; but this woman began to show improvement in the pulse at once. Her temperature, when taken to the operating room, was 105° and her pulse 110, and we hoped for the next few days to get some benefit by washing the uterus; but after these two days there was no improvement, and she did not overcome the infection by stimulating treatment. I feel like emphasizing what Dr. Russell has said. If we ever have an infection temperature we have it here. The temperature stayed always above $102\frac{1}{2}^{\circ}$ or 103° , and a slightly toxic infection would not have kept up a temperature like that. If I had a case starting with these symptoms I would go at once to the solution, and not hesitate to use two litres morning and evening, and renew it indefinitely as long as the kidneys were acting perfectly.

As to the instrument, I think that is immaterial, and if the instrument is not at hand the simple aspirating needle would be just as good.

DR. WILMER BRINTON.—How long after the injection before you find the enlargement passing away?

DR. CLARK.—If you inject both breasts they would be down to normal in about thirty minutes.

DR. W. A. B. SELLMAN read a paper on

TREATMENT OF PUS IN THE PELVIS.¹

Meeting of February 9th, 1897.

The President, WILMER BRINTON, M.D., in the Chair.

DR. T. A. ASHBY reported

SOME RECENT CASES OF HYSTERECTOMY ILLUSTRATING THE ADVANTAGES OF BOTH THE ABDOMINAL AND VAGINAL ROUTES.

A great deal of discussion has been going on for three years in regard to the two routes for operating. In the German and French schools the vaginal route has been preferred, whilst in this country the abdominal has led. Within the last year or two I have been doing more and more operative work by the vaginal route. I have not, however, abandoned the abdominal route, which is, I think, superior in some cases. The general indications for the abdominal method are large tumors, whether adherent or not, large fibroid tumors that cannot be removed by the vaginal route, tumors in which the adhesions would require minute dissection to separate them from their attachments, and cases of unilateral disease. If we approach these cases through the abdomen we can proceed according to the

¹ See original article, p. 813.

indications present and are in better condition to do good work than if we go through the vagina. Cases which necessitate the complete removal of the uterus bring up complications that are very difficult to contend with. I have come to the point in dealing with pus sacs in the pelvis, where we find the sac adherent to the uterus, of draining through the uterus into the vagina.

The removal of the uterus, when you take the pus sac out, through the abdomen does not increase the risk of the operation, when you compare the primary and secondary considerations. The latter are less troublesome than where you leave the organ behind, though the primary risks may probably be greater. If we leave a large area of denuded tissue behind after having cut away much of its attachment, it leaves the uterus deprived of its support, it is more exposed to infection, and the woman may have pelvic trouble afterward. I have had a number of cases that illustrate this, one of which is now under consideration. The patient is 40 years old and was delivered twice with forceps after difficult labors. Following her delivery she had a bad laceration of the cervix, a torn perineal body followed by a prolapse of the second degree, a prolapse of both the anterior and posterior vaginal walls which left her in a very distressed condition. She consulted a very able gynecologist, who found that her ovary on one side was destroyed, and did the operation for intrapelvic tumor and also a myomectomy. He attached the uterus to the anterior abdominal wall to retain it in this position in the pelvis. She recovered from the operation, but her condition was not improved. I am not disposed to criticise that physician, but I think in that case if he had removed the entire uterus he would have corrected all the trouble in the pelvis and her recovery would have been complete. You may sew up the perineal body and correct the laceration, but there is so much cutting away of the supports that her uterus cannot be kept in position, and I think the proper operation now would be a hysterectomy.

Another case illustrates the advantage of taking out the uterus for that condition: The lady, the mother of two children, had a complete procidentia, the result of an old tear and great relaxation of her tissues. The uterus had no support whatever, and in addition she had a pus tube on either side. I decided to do the abdominal operation, and the plan was to remove the pus tubes and attach the uterus, hoping to hold it up. In passing the sound into the uterus for exploration, after curetting the uterus, it passed without any effort on through and into the pus sac. The pus coming into the uterine cavity informed me that it was infected, and I decided to remove the uterus. She recovered without any trouble and is relieved of the procidentia. I believe it would have been dangerous to have left the uterus. Of what value is the uterus to a woman in such a condition? It is no good, it is a useless appendage, and I believe you had better remove it.

CASE III.—A woman upon whom I had operated four years

ago had enjoyed good health since that time, and now came with the history of intrapelvic tumor. I opened the abdomen and took out a tumor containing two quarts of serous fluid. Her ovaries and tubes had been removed at the first operation for pyosalpinx, so it must have been a cyst of the broad ligament. It was the most difficult thing to enucleate that I have ever undertaken. The attachment to the uterus was so dense that I had to tear it away, and it left the posterior wall in such a condition that I took out first the body, amputating at the cervix, and afterward removed the balance. I have found that it is sometimes an easier operation than to take out the entire uterus at once. In this case it was necessary to resect four or five inches of the ileum. I put in a large drainage tube, packed with gauze to drain through the vagina, and took her off the table in a very weak condition. In twenty-four hours the shock disappeared, and she made an uninterrupted recovery without a rise of temperature above 100° F. I believe she would have died if I had not removed the uterus and drained her through the vagina.

CASE IV.—A few months ago a woman of 46, who had passed the menopause two or three years, came to me with a large, hyperplastic uterus with hypertrophic elongation of the cervix and complete prolapse. She was completely incapacitated for domestic service, and I decided to remove the entire organ. I did a vaginal operation, and she made a rapid recovery and was entirely relieved. She went home a perfectly well woman. I would remove the uterus in all cases of procidentia where the woman had passed the period of life where it is of any service to her, provided it could not be kept in proper position by restoring the normal supports.

CASE V.—I have had occasion to do the operation under different circumstances upon a young woman. She had been operated upon in another institution, and I presume the operation was an oöphorectomy, for I could not find her tubes and ovaries before I operated. The uterus was attached to the abdominal wall and was partially held in that position. I kept her under observation for some months, but she was not at all relieved. The abdominal wall was healed, but there was a sinus. I thought the cause of infection was a buried suture, so made an incision in the line of these, but did not succeed in finding one. I decided to go through the vagina and take out the uterus, thinking the tubes had been removed and that the uterus was causing the trouble. In removing the uterus I found the tubes and ovaries, but they were in an atrophic condition and of no functional value to her. This patient was entirely cured by the operation, after two years of invalidism.

I have had some cases of malignant disease of the pelvis where I found the vaginal operation of benefit. These are recent, the operations having been done within the last six or eight weeks.

CASE VI.—This woman came to me two years ago with a dermoid tumor in the left ovary. I removed it and she went

home well. During the last fall she had hemorrhages from the uterus. I curetted, but before I could have a specimen examined she disappeared from the hospital. The examination showed adeno carcinoma. When she came back the uterus was removed in its entirety. The ovary on the right side is intact, and you will find some evidence of trouble near the cervix. This patient made a favorable recovery. I have found the ligature will answer in many cases without the use of the clamp, and where I use the latter I always remove it within twenty four or forty-eight hours.

I believe that in vaginal hysterectomy the mortality will become smaller and smaller as we gain experience. The statistics published by Jacobs and the French authorities seem to show this. Jacobs has had less than five per cent in his cases. All of my cases have recovered, except one which I do not believe can be charged to the operation. She was a very old woman, had a complete procidentia, and was infected before I operated. The uterus was removed to drain her pelvis. She died of systemic poisoning the result of general infection. The great bugbear of the vaginal operation has been the fear of hemorrhage. I do not believe we will have much hemorrhage if we are careful to dissect away the mucous membrane from the wall of the uterus. I use the clamp and catch forceps and take them off by degrees. In one of my cases I only used two clamps. I ligate the ovarian artery on either side.

The after-treatment has been with me very simple. I have used a small drain and tamponed the vagina with gauze, removing that about the second to the fourth or fifth day, according to the condition of the tampon. If much soiled I remove it early. So far I have not had a single case where there was any temperature above 101° or 102° , or where there was a septic condition.

DR. J. M. HUNDLEY.—I am particularly interested in Dr. Ashby's remarks concerning procidentia. I have operated upon two cases, but did not do a hysterectomy. I operated two years ago upon a woman of 30 whose uterus was hanging down between her legs. She did not have an elongated cervix. I did the operation of suspension of the uterus with repair of the perineum since. I saw her a week ago and she has been perfectly well. I operated a year ago upon a woman who had passed the menopause a number of years; she had a small uterus and complete prolapse of the vagina. What good would a hysterectomy have done in this case? If you took out the uterus it would not have kept the vagina within the pelvis. This woman had suffered with a long standing lacerated perineum; I sewed it up, stitched the uterus to the anterior abdominal wall, and she has remained well and is able to do her work with comfort.

In the main I agree with Dr. Ashby as to removing the uterus in inflammatory diseases. I have done some hysterectomies through the vagina, but it has not been satisfactory to me, probably because of my lack of experience.

DR. W. W. RUSSELL.—Speaking about the vaginal versus the

abdominal method for removing carcinoma, the point to be made is whether the disease is advanced or not at the time of selecting the operation. It strikes me that it is entirely beyond our power to say at the time of operation just how far it is advanced, and it is one's duty as an operator to take out every bit of tissue that is likely to be diseased. You put your patient through a risky operation, and if you do not remove all the diseased tissue you leave the chances of death. The question is to determine how far these growths have advanced at the time of operation. The use of the cautery has been advised because frequently there are slight morbid changes taking place beyond the point of growth which may cause trouble later.

The tumors from the cervix, which are in the vast majority epitheliomata, continue to advance, first out on the vaginal wall and down into the vagina, less frequently up into mucous membrane, and still less frequently into the wall. This is speaking of the operation cases. In the cervical canal there are nearly always adeno-carcinomata. From the body of the uterus the advance must be directly into the uterine wall and very rarely into the cervix. The carcinomata you have seen are probably limited at the internal os. If you can tell how far the disease has advanced you can remove it by the vaginal operation; but how are you going to tell?

Now, another point in regard to these vaginal hysterectomies is that you never can tell whether you have metastases in the lymph glands. The distribution of the glands is such that it is difficult to examine them at the best of times, but, if you are going to attack the growths scientifically, you must go in from above, if you would stand a chance of removing all of the diseased tissue.

DR. B. B. BROWN.—As Dr. Ashby says, in all the large tumors the vaginal route is no doubt too small for proper manipulation. I think, though, that in small tumors, unless there is evidence of extensive malignant trouble, the vaginal route is the one I should prefer. I have not seen in malignant cases in which I have removed the uterus through the vagina any tendency to return of the disease, nor any indication that it had extended to the glands beyond. In many cases of complete hysterectomy I do the mixed operation. I have dissected off the cervix, both anterior and posterior walls, through the vagina, and then continued the operation from above. The advantage of that, I think, is that you can see the field of operation more perfectly, and you render the uterus more easily raised out of the pelvis.

DR. J. WHITRIDGE WILLIAMS.—I regret that I was absent when Dr. Ashby was speaking, but, from what Dr. Hundley said, I understand that the question was brought up as to the propriety of removing the uterus for procidentia. I removed one in such case, and, as the result of my experience, I will do so no more. She had a procidentia of the vagina afterward and was no better off for having the uterus removed. I should do as Dr. Hundley has done, operate upon the perineum and

stitch the uterus to the abdominal wall. That is the experience, I think, that most men have gone through. Nearly all the German operators tried it a few years ago, and all, so far as I know, have abandoned the operation as a more or less useless one.

As to the malignant growths my experience has been different from Dr. Brown's. Even though the conditions before the operation were favorable, the ultimate results were poor. Where I have removed the uterus for carcinoma by the vagina, every one has had a recurrence, the longest period being a little over two years. I am not, therefore, an enthusiastic advocate of this operation. I have not been favorably impressed by the work that has been done in the last few years in vaginal operations. When I was in Paris I took the particular trouble to see the great exponents of the operation, and the more I saw of the work the more disgusted I became with it. The operation is done in the dark, and even the experienced operators made mistakes which we do not ordinarily make in the abdominal operation.

DR. WILLIAM P. CHUNN.—It seems to me that both routes possess some advantages. In the abdominal section you have the advantage of sight, and, in such cases as Dr. Russell suggests, can better determine how far to extend the operation. On the other hand, almost every one admits that after an operation by the vaginal route we do not have such a long period of convalescence. When Dr. Jacobs was here about two years ago I had a conversation with him on this subject. He had taken out at that time four hundred and seven uteri with a percentage of mortality less than five. In those cases there was no abdominal hernia to contend with, no unsightly cicatrix, the operation was short, the intestines were not handled at all, and the drainage was, as he expressed it, perfect, owing to the natural gravitation of fluids. He said that all his patients seemed to get well quicker and with less shock after the vaginal operation.

DR. ASHBY.—I brought up the subject for discussion and am obliged to the gentlemen for the interest they have shown in the question. I am afraid, though, my position was not entirely understood. Dr. Hundley seems to think that I advocate the operation of vaginal hysterectomy for all cases of procidentia. I did not make that statement. I think there are certainly cases where we may do it, but there are other cases where I would, of course, do the ventral fixation. Where the uterus is diseased, prolapsed to the second or third degree and the woman past the menopause, there is nothing to be gained by leaving the uterus. I have not met with the results that Dr. Williams speaks of.

In regard to the vaginal operation, I agree with Dr. Russell that if we have any evidence of dissemination it is better to select the abdominal route; but where we meet the case in its early stage, and the microscope shows only the involvement of the endometrium, the vaginal route is to be preferred. Metas-

tasis takes place very early and extends no one knows where; and we are dealing in many of these cases with conditions that we cannot estimate, for the glandular trouble may have gone far beyond any of the glands we could remove. It would be interesting to know the cases in which recurrence takes place and where the secondary infection occurs.

DR. RUSSELL.—It is practically always in the line of incision.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of April 7th, 1897.

The President, C. J. CULLINGWORTH, M.D., in the Chair.

A vote of condolence with the family of Sir Spencer Wells was passed.

Specimens.—MR. TARGETT: Large encysted peritoneal abscess simulating ovarian cyst. DR. DRUMMOND ROBINSON: Cystic ovaries removed by anterior colpotomy. DR. LEWERS: (1) A monster apparently consisting of a somewhat spherical mass of flesh with one limb attached; (2) A skiagraph of the monster; (3) A uterus with fibroids removed by abdominal hysterectomy. DR. EDEN: Incomplete decidual cast of the uterus from a case in which there was no evidence of extra-uterine gestation. MR. BOTTOMLEY showed: (1) A fetal monstrosity, (2) A case of fetus compressus. DR. DUNCAN: Further specimens of fibroid tumors of the uterus removed by intra-abdominal method. DR. HERMAN: Specimen of ectopic pregnancy going nearly to term in the peritoneal cavity, the placenta being attached to the top of the uterus.

DR. BLACKER read a paper on

THE TREATMENT OF PLACENTA PREVIA BY CHAMPETIER DE RIBES' BAG.

In the more severe cases of hemorrhage from placenta previa Champetier de Ribes' bag may be employed, in place of version, by introducing it into the amniotic cavity after rupture of the membranes. Used in this way the bag acts both as a tampon in arresting the hemorrhage, by pressing the separated portion of placenta firmly against the uterine wall, and also as a dilator of the cervical canal and a very powerful stimulus to uterine contractions. The use of the bag is therefore advocated in grave cases of hemorrhage from placenta previa as an easy method of arresting the hemorrhage, and at the same time as likely to reduce the heavy fetal mortality which usually occurs in these cases after the performance of version.

The author has treated 5 cases of placenta previa in this way,

and has collected 17 other cases similarly treated. The details of these cases are given in full in the tables. An analysis of the chief features of interest in the cases is given, showing that in only one case did severe hemorrhage occur after the introduction of the bag; that such hemorrhage may, as a rule, be readily controlled by traction upon the bag; that in none of the cases was any difficulty experienced in introducing the bag, nor was preliminary dilatation of the cervix necessary; and that the average length of time required for the complete dilatation of the cervix after the introduction of the bag was five hours and ten minutes.

Of the mothers, 1 died of septicemia—probably present on her admission to the hospital—before the introduction of the bag. Of the others, 5 had a slight elevation of temperature during the puerperium, the highest point reached being 100.6°; while in the remainder recovery was perfect and the puerperium afebrile. Of the 22 children, 14 were born alive, and 8, or 36.3 per cent, dead. Of the 14, 4 subsequently died, giving a total mortality of 54.5 per cent.

The advantages claimed for the bag are:

1. Ease and facility of introduction.
2. The certain arrest of the hemorrhage.
3. Any further hemorrhage controllable by traction upon the bag.
4. The bag, and not the child's body, dilates the cervical canal.
5. The ease of delivery after expulsion of the bag.
6. The fact that the bag is a very powerful stimulus to uterine action.
7. The lessened fetal mortality as compared with the results obtained after version.

The objections brought against the bag are considered, viz.: the risk of septic infection, the danger of rupture of the uterus, and the displacement of the presenting part caused by its introduction.

The further objections that the bag is difficult to introduce, and that preliminary dilatation of the cervix is required, are shown to be groundless.

Even in cases of central placenta previa the use of the bag is practicable, and likely to give just as good if not better results than the performance of version.

DR. HERMAN agreed with Dr. Blacker's practical and useful paper. He thought the bag was a better plug than the half-breech, because it pressed on the whole circumference of the lower uterine segment, while the half-breech did not. The hemorrhage in placenta previa was produced by dilatation of the cervix, hence the bag could always be introduced when considerable hemorrhage had occurred. His own experience of the use of Champetier's bag in placenta previa was altogether favorable.

DR. HORROCKS said that he had for some years used De Ribes' bag not only in cases of placenta previa, but also in all

cases where formerly Barnes' hydrostatic dilators had been used. In cases of placenta previa the bag had been placed in the amniotic cavity only when the membranes had been ruptured. In cases where they had been intact care had been taken not to rupture them. The presenting portion of the placenta had been detached by sweeping the finger round the lower zone, and then the bag had been passed into the uterus so as to lie below the membranes. Good results had been obtained by this method, which had much to be said in its favor. In so called accidental hemorrhage one ruptured the membranes because it was the quickest method known of securing uterine contraction which stopped the hemorrhage, whereas in the hemorrhage from placenta previa the principle of treatment was precisely the reverse—that is, instead of invoking uterine action one tried to avoid it and to dilate up and deliver by artificial means, and only when the cervix was sufficiently dilated did one rupture the membrane. He considered the chief danger was sepsis from the bag itself, which was difficult to get aseptic owing to its composition of india-rubber and the stuff used by the instrument-makers to make it waterproof.

DR. SPENCER said he had had a considerable experience with placenta previa and with the employment of Champetier de Ribes' bag, though he had not employed the bag in the treatment of placenta previa, but usually for the induction of premature labor. That experience led him to agree with most of the conclusions of the author, but he thought that some further consideration should be taken into account in order that discredit might not be brought upon this method of treatment by its adoption in unsuitable cases. In cases of complete placenta previa he doubted whether it was advisable to use the bag unless an edge of the placenta could be separated, for the child in these cases almost always died, and it would generally be impossible so to control the bag during its introduction as to be sure that it did not push up the placenta instead of passing into the amnion, and that the hemorrhage which it was intended to check was not increased by the treatment. Dr. Spencer called attention to the paper of Dr. Camille Juge, which had appeared since the author's paper was written, in which an account was given of nine cases treated by the introduction of the bag into the amniotic cavity. Of these nine cases three mothers died and six children were born dead. These cases added to those in the author's table gave a maternal mortality of thirteen per cent and a fetal mortality of at least fifty-eight per cent. The bag often caused a great deal of pain, and in three of Juge's cases it produced syncope—a very grave condition in cases of this nature. It also often took a long time to induce labor, as long as twenty hours in two of the cases in the table, whereas he (Dr. Spencer) found that after version the labor was over in sixteen out of seventeen cases in three hours, and in the seventeenth case within five hours.

DR. BLACKER, in reply, said that he was indebted to Dr. Herman not only for the remarks he had made about his paper, but

also for the fact that it was mainly on his recommendation that he had first employed this mode of treatment in placenta previa. He thought introduction of the bag after rupture of the membranes was certainly superior to its introduction before, as the latter method was almost certain to be accompanied by an unnecessary and avoidable amount of hemorrhage.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.

PROCEEDINGS OF THE TWENTY-SECOND ANNUAL MEETING, HELD IN
WASHINGTON, D. C., MAY 4TH, 5TH, AND 6TH, 1897.

DR. JAMES R. CHADWICK, of *Boston*, *President*.

First Day, May 4th.

DR. A. F. A. KING, of Washington, extended a welcome to the city from the resident Fellows of the Society, in a brief address.

DR. BACHE MCE. EMMET, of New York, presented a paper upon

MULTIPLE MYOMATA IN THE ABDOMINAL CAVITY.

He said that these tumors were exceedingly uncommon in other parts of the body than the uterus, and had been found elsewhere, so far as known, only in the skin, scrotum, prostate, orbit, eye, blood vessels—the saphenous vein in particular—the digestive tract, esophagus, stomach, duodenum, ileum, and hepatic ducts. While occurring in the uterus as large growths, they seldom exceeded the size of a pigeon's egg in other regions. These tumors were rare under 35, and, in other organs than the uterus, were more common in men. They were now believed to originate invariably from previously existing involuntary muscle tissue, by hypergenesis, and tended to become isolated to such an extent that they had been discovered in situations where no smooth muscle fibre was known to be present, thus suggesting a heterotopic origin. Alteration in size of myomata often occurred from their own contractility, compression of the organ in which they were situated, or altered vascular supply. Such diminution was most marked in uterine myomata after the menopause. Fibrous induration, calcareous or fatty degeneration, calcification, edematous infiltration, and gangrene were possible terminations. Myomata did not multiply or recur, and were benign, though they might undergo malignant degeneration, most often into carcinomata or spindle-celled or round-celled sarcomata. When situated in the abdominal cavity these tumors might cause symptoms from pressure on adjacent organs, or reflex symptoms like those in

cases of movable kidney or displaced spleen, by dragging upon the viscera. The growths occurred too rarely in the abdominal cavity to demand often a careful differential diagnosis. If springing from the muscular coat of the intestine or connected with it, the history of the case would be of most value, though rapid growth might suggest malignancy. Lipomata, cystic and fibrous tumors of the omentum might be confused with myomata. The case upon which the article was based was operated upon November 22d, 1894. Patient 25 years of age. A tumor, 10 by 12 inches, covered by omental and intestinal adhesions, attached over the fifth lumbar vertebra by a base $1\frac{1}{4}$ inches in diameter, was reported by the pathologist, after removal, as a myofibroma. It was considered retroperitoneal, as the ureter had been raised upon its surface. The left ovary, being cystic, was removed with its tube. The left ureter was accidentally divided, and uretero-ureteral anastomosis was performed.¹ The patient was delivered by forceps of a boy seventeen months after operation, and her physician then reported the presence of a hard mass 8 inches long, 4 or 5 deep, 3 or 4 thick, too high for the left ovary, too low for the spleen. Later its form had changed and it resembled a multilocular ovarian cyst. On November 2d, 1896, a large mass was found, apparently forming a part of the uterus, and several smaller growths. Laparotomy was performed and 7 tumors removed. All were adherent to the intestine, and attached to the omentum by pedicles containing blood vessels. One, resembling the kidney in shape and location, was found over the site of the uretero-ureteral anastomosis of two years before, and the ureter was opened in its excision and was closed by suture. The right ovary was cystic and was removed. The weight of the 7 tumors aggregated 3,500 grammes. They were found microscopically to be nearly pure myomata. A tumefaction appeared, shortly after operation, at the site of the original tumor and increased rapidly to the size of a kidney, but two and a half months later was reported by her physician to have diminished to that of half an English walnut, while the patient was in good health and no other abnormal conditions could be discovered in the abdomen. The original tumor was probably retroperitoneal, as the ureter lay upon it, and, if so, might have sprung from the ureter or a blood vessel, or have been a recent development of organizing lymph. If not beneath the peritoneum it would be explained as were the later growths. These probably existed in the uterus before pregnancy, were deposited high in the abdominal cavity while the uterus was parous, and grew rapidly during lactation. The reappearance of a tumor on the spot from which the original growth had been removed, leaving a base of $1\frac{1}{4}$ inches, presumably containing smooth muscle fibres, suggested that such tumors should perhaps be dreaded much as a malignant neoplasm. The question arose whether the ultimate diminution in size of the growth after the last operation might have been due to the same process which

¹ See AMERICAN JOURNAL OF OBSTETRICS, vol. xxxi., No. 4, 1895.

caused atrophy of the uterus—that is, whether the removal of the remaining ovary and tube would produce this effect upon tissue originally derived from the uterus, but then distant from it. If so, a difference in the smooth muscle fibre of the uterus from that of other organs might be inferred.

DR. CHARLES P. NOBLE, of Philadelphia, read a paper upon

THE DEVELOPMENT AND THE PRESENT STATUS OF
HYSTERECTOMY FOR FIBROMYOMATA AND
FOR INFLAMMATION OF THE UTERINE
APPENDAGES, IN AMERICA.

Hysterectomy for fibroids, and ovariectomy, of which it was an outgrowth, were of American origin. Supravaginal amputation had been the type adopted in this country, and the steps in its technique which had made it simple and safe were originated by American surgeons, though notable work had been done in hysterectomy in other countries, particularly by Koerberle, Schröder, Bardenheuer, Martin, Chrobak, Christopher Martin, and F. B. Jessett. The advances due to American surgeons were especially: (1) the retroperitoneal treatment of the stump by Emmet, Eastman, Dudley, and Goffe; (2) the ligation of the ovarian and the uterine arteries in their course through the broad ligaments, by Stimson and Baer; (3) amputation through the cervix well below the internal os, and the omission of constricting ligatures in the cervical tissues, by Baer, substituting a few catgut sutures to close the cervix and thus prevent secondary infection of the peritoneal cavity from the vagina through the cervical canal; (4) the systematic technique for the removal of intraligamentous fibroid tumors, originated by Pryor and Kelly. The technique of supravaginal amputation for myofibromata might be summarized as follows: When practicable the uterus should first be curetted and irrigated. The abdominal incision is made through the right rectus muscle, near the linea alba, and should be of sufficient length to allow the removal of the tumor, which may be grasped by volsella forceps. The intestines are covered with gauze pads and a sponge placed in each side of the false pelvis. If the broad ligaments are not distorted by the tumor, a ligature of catgut or fine silk is passed through its upper border, external to the ovary and including just enough tissue to secure the ovarian vessels. The vessels of the round ligament are secured by a ligature which encloses some of the tissue included by the first. Reflux hemorrhage is prevented by placing a clamp upon the uterine end of the broad ligament, and the latter is divided between clamp and ligatures, through the round ligament. By an incision connecting the round ligaments the anterior layer of the broad ligaments and the peritoneum in front of the uterus is divided and the vesical peritoneum pushed down. After traction upon the tumor this is turned toward the opposite side and a ligature placed, by means of a sharp needle, around the uterine artery external to

where it turns upward, and including a small amount of the tissue of the cervix. This is repeated upon the opposite side, and the uterus then amputated below the internal os, making the stump concave and closing it with interrupted catgut sutures. The uterine and ovarian arteries are tied separately with fine silk. Any oozing which may occur is arrested by fine catgut ligatures, and the peritoneum over the bladder and the anterior layer of the broad ligaments are employed to cover the raw surfaces of the stump and broad ligaments. A continuous Lembert suture of catgut is employed. After irrigation of the pelvis with normal saline solution the gauze and sponges are removed and the wound in the abdomen closed. If the tumor has developed between the layers of one broad ligament, that of the opposite side is first divided. The ovarian vessels and those of the round ligament of the distorted side are secured by separate ligatures, employing a blunt aneurism needle. Reflux hemorrhage is prevented by clamps and the round ligament divided. An incision is made through the peritoneum covering the anterior part of the tumor and running across the front of the uterus. After pushing down the bladder and the peritoneum in front of the tumor and searching for the ureter, the ovarian arteries are divided and the peritoneum covering the posterior surface of the uterus incised. The tumor is then enucleated and the uterine artery tied. When tumors have altered the relation of both broad ligaments temporary ligatures may be placed upon the ovarian arteries between uterus and ovaries. The broad ligaments are then divided between these ligatures and clamps applied near the uterus, the vessels of the round ligament tied, tumors enucleated, uterine arteries tied, cervix amputated as usual. Ligatures are placed around the ovarian arteries external to the ovaries, and these are removed. For mass ligatures fine silk or catgut should be used. The uterine and ovarian arteries should be ligated separately with fine silk. In removing the peritoneum from the tumor and uterus Kelly's method, by means of a sponge on a holder, was of great value.

The present status of supravaginal amputation for myofibromata was shown by comparison of the results of this operation and of total hysterectomy for these tumors. To his own statistics of supravaginal amputation since 1891 were added those of several others for the past 3 years. These were: Kelly, 155 cases, 7 deaths; Baldy, 56 cases, 2 deaths; Penrose, 57 cases, 4 deaths; Boldt, 11 cases, no deaths; Noble, 66 cases, 4 deaths; total, 345 cases, 17 deaths, or 4.9 per cent. Total hysterectomies: Polk, 24 cases, 1 death; Boldt, 76 cases, 9 deaths. Of cases compiled by Olshausen, 806 supravaginal amputations gave 45 deaths, 5.6 per cent; 520 total hysterectomies, 50 deaths, 9.6 per cent. The statistics showed the mortality of supravaginal amputation to be little more than half that of total hysterectomy for uterine myofibromata. The disadvantages of the latter operation were: greater duration, probably fifteen minutes; more difficulty in hemostasis, as

branches of the vaginal and middle hemorrhoidal arteries were divided; risk of infection from the vagina; drainage of the bases of the broad ligaments and vaginal walls was necessary, and therefore septic infection was more liable to occur. Its advantage was that, if diseased, the cervix was removed; also that it would not remain and possibly become later the seat of cancer. Since using catgut in suturing the cervix he had had no cases of suppuration beneath the flap of peritoneum. The advocates of total hysterectomy in America had adopted vaginal hysterectomy for small tumors, while those who performed supravaginal amputation had not. This appeared to show that the former were dissatisfied with their results, and were accustomed to have the ligatures upon the uterine arteries and vaginal walls come away by suppuration, requiring drainage of the subperitoneal space, making the question chiefly whether to operate from above or below. Those who performed supravaginal amputation disliked the vaginal operation because it demanded drainage of a healthy peritoneum, which, if soiled by pus, could be cleansed by normal salt solution and the abdomen closed, in the supravaginal operation. His own experience with vaginal hysterectomy for fibroids included but one case. The relative mortality of this operation and supravaginal amputation was probably dependent upon the individual operator. Vaginal hysterectomy violated several cardinal principles. It was not conservative, myomectomy being the ideal operation, and this being impracticable by the vaginal route except for small submucous fibroids or those springing from the lower part of the uterus. Vaginal hysterectomy required the induction of sloughing; and when clamps are employed drainage must be used even in the healthy peritoneal cavity, to wall this off from the sloughing tissue. Ovariectomy was advisable only for small tumors with persistent bleeding, when palliative treatment failed and the patient could not stand prolonged anesthesia. In 12 cases which he had operated upon by this method the results were fairly satisfactory. That early operation for fibromyomata was important, as the mortality in uncomplicated cases in healthy women should not be more than 2 per cent, was shown by analysis of his own cases. This showed 20 cases in which the patient would have died as a result of degeneration of the fibroid or from complicating tubal or ovarian disease, and others probably from hemorrhage, anemia, or intercurrent diseases as a result of malnutrition—that is, probably 30 to 38 per cent would have died directly or indirectly from the disease. Thirteen women—20 per cent—had passed the usual period of the menopause. Delay allows increase of the tumor and prolonged invalidism. In considering the question of delay the possibility of complicating pregnancy and labor must not be forgotten. Early operation diminishes mortality, allows performance of myomectomy if the patient is of child-bearing age, thus saving the sexual functions. The latter was the ideal operation for fibroids. His own practice included 22 cases, 5 operated upon by the abdominal, 17 by the vaginal route. All

were restored to health. This was too small a proportion of his 100 operative cases.

DR. R. STANSBURY SUTTON, of Pittsburg, said that the surgical treatment of uterine fibroids had been an irregular but progressive evolution since the days of Kimball. The methods of various operators might be equally good. In seeking to be conservative he questioned whether it was essential or right to do a surgical operation upon every case of fibroids of the uterus. The late Thomas Keith had stated that, when untreated, not more than ten per cent of all such cases died as a result of the tumor, and that the operation was unjustifiable unless its mortality could be reduced beyond this limit. He would not refuse to operate if it were requested, but would not advise it for small fibroids. Operations were dangerous in the hands of even the most experienced. He had advised against an operation in several cases of small growths accidentally discovered, and the patients had died in four days after it had been performed by others. We should operate if necessary, but if not, withhold the hand.

DR. ARTHUR W. JOHNSTONE, of Cincinnati, said that he had decided views upon the subject, and, like his teacher, Lawson Tait, was very conservative. Of five hundred cases of uterine fibroid which he had seen he had operated upon less than one hundred. Many cases should be left untouched, as they were of little importance. As an instance he cited the case of a very stout woman, 43 years of age, with a tumor filling the pelvis and extending into the abdomen. The growth was apparently cystic. Upon opening the abdominal cavity the tumor was found to be about the size of a cocoanut and covered by a layer of omental fat four inches in thickness, which had given the sense of fluctuation. The abdomen was then closed, as he believed there was no reason for removing the tumor. Many women did not suffer from the presence of uterine fibroids, and in many the menopause was followed by a diminution of their size. He sometimes removed the appendages for fibroids, and had done so in fifty cases, all of which had recovered and shown improvement. The growth of certain soft, edematous myomata was unchecked by the menopause, either natural or artificial. They were rare and resembled the pregnant uterus. He had seen only five such tumors, all of which were removed, the patients all recovering. He had done twelve complete hysterectomies for fibroids, but left the cervix whenever it was in good condition, not closing it, but leaving it open for drainage. Conservatism was the keynote. Many cases, if let alone, would be cured by Nature.

DR. B. F. BAER, of Philadelphia, favored conservatism, but thought that this led generally toward radical surgery, usually supravaginal amputation and occasionally myomectomy, unless the growth was removable as a polypus by way of the vagina. He had had much experience since 1892 with the operation which he then advocated. It was not conservatism to decry an operation which in the hands of practised men is itself conser-

vative, as more would die of the disease than from this treatment. It saved inestimable suffering and many lives. He believed that in all cases of fibroids there was suffering at some period; certainly all who had consulted him had done so for this reason. Many would endure it rather than undergo the risk of an operation, hoping that after the menopause the tumor would decrease. He advised against such a course, as a spontaneous cure after the age of 40 or 50 was the exception. It was therefore more conservative to operate, though in regard to this a man should be governed by his personal statistics. He considered it wrong to advise against operation and allow the patient to go to inexperienced surgeons and thus incur extra risk. The principle which he advocated in 1892 he still believed to be correct.

DR. A. PALMER DUDLEY, of New York, cited Jacobs' modification of his operation, after a visit to this country, as an illustration of the influence of American work upon foreign operators. He also stated his belief that the menopause was not a panacea, and that waiting in expectation of a cure in this manner should not be advocated. If the menopause were as efficacious as many claimed, Hegar's proceeding would be today the ideal method, which it was not. In the treatment of fibroids that operation should be adopted which seemed best suited to the individual case with reference to the diagnosis made—hysterectomy, abdominal or vaginal according to existing circumstances, or myomectomy. The preference should be given to the last operation whenever possible.

DR. WILLIAM T. LUSK, of New York, agreed in general with the preceding speakers. He had seen many cases in which small fibroids, giving no symptoms, had been accidentally discovered and the patients had been urged to have them removed. Many such tumors never increased in size, so no immediate operation was indicated. These patients should be examined every year or two, or when any symptoms developed. He strongly favored myomectomy, if applicable to a case which demanded operation. In cases in which small fibroids and tubal disease coexisted he had removed the tubes and ovaries, and had had no occasion to regret this treatment. He was pleased that Dr. Noble advocated leaving the cervix in removing the uterus, as the after-condition of the patients seemed better when the uterine arteries were preserved. If they were sacrificed, in many cases atrophy of the pelvic organs caused symptoms worse than those from the original disease.

DR. J. MONTGOMERY BALDY, of Philadelphia, said that true conservatism was what yielded the best results to the patient. It was axiomatic that in a large proportion of cases the menopause was not curative and that patients were often worse after that time. He had seen few cases of small uterine fibroids who did not know that they had some trouble. They suffered as Dr. Baer had said. Long-standing, progressive anemia was one cause of their suffering. A patient seldom asked for operation without good reason for it. He agreed

with Dr. Dudley that the treatment should be suited to the case, if recognizing that the vast majority demanded surgical interference and that the greater number of these required hysterectomy. Few believed that double oöphorectomy would invariably succeed. This operation could not always be completed on account of hemorrhage, or ovarian tissue might be left; and bleeding may continue even when it has been performed. Hysterectomy, with only a small proportion of failures, was superior if its mortality was not greater, and he believed that it was not. It was necessary to realize that cases leaving an expert might go to others of less experience, and to consider the responsibility in advising against operation.

DR. THADDEUS A. REAMY, of Cincinnati, believed that the menopause cured many cases and that oöphorectomy during the early stages of a uterine fibroid would arrest its growth. While it was strictly true that if let alone many would destroy life, many, on the other hand, would increase greatly in size without causing discomfort, or would not grow larger than an egg. An illustration of this fact was furnished by an autopsy which he had made upon a patient whom he had had under observation for eighteen years and in whose uterus he discovered an interstitial fibroid, although she had never shown signs of such a condition. In many fibroids degenerative changes did not occur. Since so many did not destroy life, since an operation could be done if the growth increased or if symptoms appeared, as they did before the danger point was reached, and the number of experts was increasing, and oöphorectomy could relieve these patients, he thought that some should benefit by these facts. Operation should be postponed, in cases of small fibroids giving no symptoms, until the latter came on. He had done sixteen hysterectomies during the past year, with one death.

DR. BEVERLY MCMONAGLE, of San Francisco, expressed the opinion that what was conservatism for the woman of child-bearing age was not for one in advanced life. In the latter class, if the symptoms were sufficient to bring the patient to a surgeon, the case demanded careful diagnosis, and if this led to the belief that the symptoms were due to a fibroid, hysterectomy should be done if it was thought impossible to give relief otherwise. If the patient had not passed the menopause myomectomy was demanded with a view to saving the uterus, ovaries, and tubes. The percentage of recoveries from either the abdominal or vaginal operation was large if the tumors were small. If the growth were left and pregnancy occurred it might increase in size and interfere seriously with labor. It might cause severe endometritis or anemia or complicating disease of the tubes and ovaries. These points favored early removal, with preservation of the sexual functions by myomectomy whenever feasible.

DR. GEORGE J. ENGELMANN, of St. Louis, stated that the treatment must depend largely upon the character of the tumor and upon the resulting symptoms, and that in many cases its

character could not be established until it was incised. He did not agree with Dr. Baldy that the majority of small tumors were dangerous to life. Dr. Reamy had correctly stated that they were often discovered post mortem, especially in negroes and working women, although their presence had never been manifested by symptoms. He did not expect a cure after the menopause and had seen the tumors increase after that period. Retrograde metamorphosis might occur at any age and an operation might be performed later if necessary.

DR. S. C. GORDON, of Portland, had formerly done oöphorectomy for fibroids, with success in some cases, though in others degeneration of the tumors had followed. He now invariably removed the uterus with the ovaries and tubes. This meant cure or kill, and most patients preferred that it should be so. He would operate upon every case with symptoms attributable to fibroids, as no woman was safe with such a growth of any size causing symptoms. Few myomectomies could insure freedom from return of the tumor, and for this reason hysterectomy should be done as a rule. The results from hysterectomy in his hospital practice had been better than those of other operations. Whenever the appendages or fibroids required removal the uterus also should be taken out.

DR. T. ADDIS EMMET, of New York, said that fibroids of the abdomen, not connected with the uterus, were rare. He had seen three arising from the fascia of the abdominal wall. The transplantation of fibroids was well illustrated by a case in his practice. The patient had a fibroid on the right cornu of the uterus. She subsequently married, became pregnant, and the tumor disappeared. After this a mass of unknown character was felt below the uterus, and seven years later when an ovarian tumor was removed the fibroid was found attached to it. He would never do hysterectomy if it were possible to avoid it. Any tumor which projects into the uterine cavity should be removed by morcellation. The success of hysterectomy was its most objectionable feature, as it offered too great a temptation to unsex the patient. He believed that fibroids would not develop in a healthy woman who menstruated normally and was fertile. They probably began immediately after a menstrual period, from some fault in the restoration of the uterine mucosa, the result of a perverted function. He had watched their development in two cases. After menstruation a roughness had been felt upon the uterine wall, and subsequently a fibroid was removed. He had seen cases in which the tumor disappeared after pregnancy. Finally, he urged the study of the cause of their development, and of the treatment which could be applied while they were still small.

DR. BACHE EMMET, in closing, also advocated the study of the genesis of fibroids, and said that they did not necessarily arise from disease of the uterine canal, but might be due to that of the muscular tissue. Operative treatment should be employed only where symptoms demanded it. If the general

health were cared for and anemia treated, the tumors might remain quiet.

DR. C. P. NOBLE, in closing, said that he sometimes advised expectant treatment in the case of small tumors, but that there was no more pernicious doctrine than that the menopause would cure them. Twenty-five per cent of his own cases had passed the climacteric, and two were 68 years of age. The twelve cases in which he had removed the ovaries did not show as favorable results as those in which hysterectomy had been performed. There was no reason for oöphorectomy, as hysterectomy was as safe, and it was no more conservative to remove the ovaries than the uterus. The majority of cases should be treated by myomectomy. The relative number of these operations showed the degree of an operator's conservatism, and his own proportion, twenty-two per cent, was too small. He had not as yet had a recurrence after this operation.

SECONDARY OPERATIONS.

DR. H. J. GARRIGUES, of New York, read a paper upon this subject. Patients dreaded surgical treatment, and expected the primary operation to effect a complete cure, as was shown in a case upon which he had recently performed colpoperineorrhaphy and Alexander's operation, from which the patient expected a recovery from dyspepsia and pulmonary tuberculosis. Often the primary operation should be only one link in a chain. After removal of a malignant growth it was essential to re-examine the case every few months on account of the danger of recurrence. The necessity for secondary operations and the benefit derived from them were illustrated by a number of cases. Extensive adhesions were frequently the cause of suffering, as was shown by three cases reported. In each the adhesions were freed; in one the cicatrix of seven previous laparatomies was excised; the uterus being removed in the others. Relief of the symptoms followed. Enteroptosis was another sequel of operations which might demand relief. It occurred most frequently after labor, when pressure upon the abdominal viscera had been relieved. Methods of avoiding the necessity for secondary operations should be considered. All denuded surfaces should be covered with peritoneum. Sutures also might act as irritants and cause adhesions. Raw surfaces might be covered with iodoform or aristol, which would unite with the exudate to form a protecting film. Care should always be exercised, in handling the intestine, not to remove the endothelium. Only fine gauze and soft sponges should be employed in the peritoneal cavity, and these should be used with caution. The bowels should be moved, for the purpose of preventing the formation of adhesions, as soon as the patient was in condition to stand it, usually about forty-eight hours after operation. His experience had taught that when it was necessary to remove diseased appendages the uterus should be curetted and left in place. Its removal under these circum-

stances increased the shock of the operation. The uterus usually atrophied rapidly and trouble rarely occurred. It acted mechanically to advantage, filling part of the pelvis and thus preventing prolapse of the abdominal viscera. If the necessity arose hysterectomy might be performed later. An electrolytic current applied in the vaginal vault often relieved pain and caused absorption of exudates.

DR. BACHE EMMET had had an extensive experience in the same line. Patients often suffered after operation, and the uterus had to be removed later. Symptoms should be thoroughly studied. He agreed with Dr. Garrigues that the peritoneum was handled too roughly and too much exposed to the air. It should be cleansed by irrigation with normal salt solution, and aristol employed for dressing. Ligatures were frequently a source of infection, especially in transfixing the broad ligament with catgut, and pelvic cellulitis might follow as in cases cited.

DR. PHILANDER A. HARRIS, of Paterson, believed that the faulty technique of particular operations was responsible for many unfavorable results. Extreme contraction of the vagina was sometimes reported. This could be avoided by bringing the surfaces together with two tenacula and estimating the amount of mucous membrane which it was necessary to leave before introducing sutures. The technique of closure of the abdominal wound was formerly less perfect, which probably accounted for some unfortunate sequelæ. Before deciding upon operative treatment of a case it was important to ascertain the reason which brought the patient to seek assistance, and to record it in her own words. This should be followed by a strict cross-examination, never relying upon the diagnosis of others. From such a history it would be possible to eliminate certain pains as incurable by operation; and the patient could be warned of this before submitting herself to operation and partial disappointment, and if a secondary operation was found necessary she would more readily assent to it.

DR. A. LAPTHORN SMITH, of Montreal, touched upon the subject of post-operative intestinal adhesions, illustrating his remarks by two cases. In one, in which ventral fixation was performed, the omentum was adherent to the pelvic brim. When the abdomen was reopened the intestine was found attached by adhesions to this point on the pelvis and to the end of the Fallopian tube which had been removed. Such adhesions should be avoided by covering raw surfaces with peritoneum whenever possible and by care in closing the abdominal incision. The latter should be done, if possible, so accurately as to leave no denuded surface on the internal abdominal wall, and if this was not feasible the omentum should be drawn down so as to protect the intestines from contracting adhesions to the scar.

Second Day, May 5th.

SUGGESTIONS CONCERNING VENTRAL HERNIA RESULTING FROM ABDOMINAL SECTION, AND ITS TREATMENT.

DR. ANDREW F. CURRIER, of New York, read a paper with this title. He referred to the diminution of the danger of post-operative hernia by the substitution of the vaginal for the abdominal route in many cases. A lumbar incision was particularly apt to be followed by hernia. The etiology of ventral hernia varied. It was predisposed to by poor vitality, tuberculosis, syphilis, and chronic alcoholism. It might be due to imperfect technique, either faulty apposition of homologous structures, deficiency or superabundance of sutures or their premature removal, or insufficient protection of the wound after the patient was out of bed, or to strains, fatty degeneration at the time of the menopause, or prolonged use of drainage. He divided ventral herniæ into three classes: (1) simple, (2) multiple, and (3) massive. In the first of these there is a separation of the fibres of the muscle and fascia, the peritoneum protruding and forming the hernial sac which becomes adherent to the skin. The contained intestine and omentum become bound together and perhaps adhere also to the peritoneal sac. There is little danger of strangulation, but the hernia may enlarge by increased lateral stretching and retraction of the muscles. The tissues become bound together by connective tissue, and the fat in front of the sac increases. In the second variety the tissues are weak and flabby, and much fat is present. Not only is a central hernial sac formed, but also others in other parts of the abdominal wall. The third class includes all cases where the hernia is as large as a child's head. These develop suddenly or gradually. In the latter case a strong fibrous ring forms at the peritoneal border. There may be a thickening of the peritoneum; the intestine may be irreducible; there may be a large mass of fat in front of the sac.

All cases should be operated upon, or enlargement would occur, especially in laboring women, until the whole original wound had become open. Surgical treatment in early cases demanded only freshening the edges of the wound and the approximation of homologous structures, after removal of superfluous tissue in cases of longer duration. Longitudinal incisions parallel to the edges of the wound should be made through the fascia when the tension was extreme. In the massive variety the fibrous ring should be entirely removed, as well as superfluous tissues—peritoneum, fat, etc. In multiple herniæ the tissues were so degenerated that he merely denuded the central sac, removed it and pouches contiguous, and united such tissues as could be approximated without great tension. For this he had found silkworm gut best. The extreme limit of tolerance of this in the tissues was three or four weeks. When the tissues were greatly degenerated interrupted sutures of coarse silver wire were better, and good results were obtained if they were left in two weeks. He employed a modification of

the buried continuous suture. The peritoneal suture was discarded as unnecessary. The essential suture entered the abdominal wall just above the upper angle of the wound, passed through all the tissues below the skin and fat from end to end of the wound, and emerged just below the lower angle. A strand of coarse silkworm gut was used, with a strong curved needle at each end. The needles entered the abdominal wall above the upper angle of the wound, one-half inch apart laterally. A continuous suture was then made, including peritoneum, fascia, and muscle in the stitches, and using the needles alternately, as in lacing a shoe. If the wound was less than three inches in length one suture would suffice; if of greater length two should be used, one beginning at each end of the wound. If two were employed the ends of each should emerge through all the tissues, including the skin, near the middle of the wound and be tied there. A piece of gauze placed beneath the first and last stitches protected the skin from pressure. The skin was to be closed by a continuous or interrupted suture of silkworm gut, and the wound sealed with iodoform-collodion if desired. The dressings and superficial sutures should be removed in two weeks; the deep might be left two weeks longer, unless causing irritation. Anesthesia might be required in withdrawing the sutures. The patient should remain in bed a few days after their removal, and strips of rubber plaster might then be applied as a support.

DR. J. M. BALDY said that he had used a silk suture for the peritoneum, the same for the fascia, and silkworm gut for the skin, subcutaneous fat, and muscle, and had excellent results.

DR. A. LAPHORN SMITH believed in leaving the sutures in nearly a month. For the last six years he had done so and hernia had rarely occurred. If the stitches were removed in five or six days the wound was often reopened by coughing. It had been noticed that at the expiration of this time, after section of the tendo Achillis, the newly-formed tissue could be stretched two or three inches. The same condition probably existed in the abdomen, diminishing with time. In thin women there was little danger if silkworm gut through all the tissues and at intervals of one-third inch was used and was left in one month. In stout women there was great danger of hernia when the through-and-through suture was employed, as the fat was not a sufficiently strong support. In these cases he employed buried silkworm gut through muscle and fascia, and an intracuticular stitch in closing the skin. It had been found necessary to remove the buried suture in about ten per cent of the cases; otherwise he would advocate the method for all.

DR. JOSEPH TABER JOHNSON, of Washington, said that any method of closing the abdominal wound so as to prevent ventral hernia should be hailed with delight. Most of the methods proposed seemed cumbersome. He had seen four tiers used and the patient kept under ether longer by the closure than by the rest of the operation. Homologous layers should be

apposed, the closure of the fascia being most important. A through-and-through suture near the edge of the wound and coming out near the peritoneum should succeed if the patient was not too fat and too great tension was not employed. Silkworm gut was an excellent material. He could not recall a case of ventral hernia where through-and-through sutures were used and silkworm gut united the fascia. The effort should be to perfect a method with two rows of sutures.

DR. C. P. NOBLE said that an experience of five years with buried sutures had given him great confidence in them. He had employed them in nearly 400 cases, 358 of which he had tabulated recently. Eight of these had suppurated, and two since. If suppuration did not occur he had had no trouble. Dr. Smith's asepsis was not perfect if ten per cent did so. In 390 cases he had had two herniæ—one operated upon for umbilical hernia, the other for tubercular peritonitis. It was important to take time to close the wound carefully, and if this were done hernia should follow in not more than one per cent. He had at first used fine silkworm gut with good results, but now employed an intracuticular suture. He united the peritoneum by a running suture, and the muscle in the same way, and used silkworm gut for the fascia and another suture for the skin, taking twenty minutes to complete the closure. The method suggested by Dr. Currier was ingenious, but the silkworm gut should be left in. He had, in 50 to 75 cases, removed the fat from the edges of the fascia, and, overlapping one side by the other, had united them face to face.

DR. A. PALMER DUDLEY insisted that hernia must be prevented by bringing the cut portions of the linea alba together edge to edge and keeping them so, and that success could never be attained by uniting them face to face. Approximation of the edges could never be secured in a four-inch wound by sutures including all the tissues down to the peritoneum. In large herniæ the abdominal muscles were separated, often to a great extent, were changed, and required great traction to bring them together and maintain them so for some time. He had already reported 5 cases in which he had employed his own method, and had done 7 more since, all with perfect results. He never used permanent buried sutures. Silkworm gut had one cutting edge and would allow separation of the tissues. He advocated the use of silver wire, which would exert sufficient tension to hold the linea alba, could be left as long as desired and then removed. His own method acted as a drain for the cellular tissue. For the peritoneum he employed fine catgut. A silver wire was passed through the linea alba and muscle down to the peritoneum and shouldered carefully. A canula was then passed down the suture, traction made on the latter, and a shot placed upon it. When ready to remove the suture the shot should be cut off and the wire untwisted. Kangaroo tendon was used between the stitches to secure accurate approximation, and the skin closed as desired.

DR. CURRIER said, in closing the discussion, that if the operation had been tedious the wound should be closed as rapidly as possible. His own method was not cumbersome, as only two sutures were used. If the tissues were in bad condition the stitches were liable to cut through, whether silver wire or silkworm gut were employed. His objection to buried sutures was that after they once became loose they were of no value, but acted as foreign bodies, and for this reason were better out of the body in order to avoid possible suppuration. It was not imperfect technique which usually caused hernia, but imperfections of the tissue, on account of which faultless technique might be followed by failure. Silver wire possessed the great advantage of permanent asepsis, and should be used when the hernia was voluminous and thin-walled, with tissues of low resisting power.

PRESIDENT'S ADDRESS.

The President, DR. JAMES R. CHADWICK, chose as the subject for his address

AN HISTORICAL SKETCH OF ABDOMINAL SURGERY.

Two events during the past year—the death of Sir Spencer Wells and the semi-centennial celebration of the discovery of surgical anesthesia—were of vital significance in the development of abdominal surgery. He traced its growth during the lifetime of Sir Spencer Wells, its most active promoter, particularly emphasizing his influence upon its progress. It was a question whether, aided by the advances which have so greatly reduced the dangers of operation, the operative mania had not gone too far. Though mortalities were small we could not say what the later fate of the patients had been. It was an un-mixed evil to have a large percentage of women in the child-bearing age rendered sterile. Were not organs and functions being too rapidly sacrificed when they might be saved? The cessation of function in the generative organs of women was a period of serious and protracted disturbances of the general system, and it was unreasonable to suppose that the artificial arrest of these functions could take place with other than equal or greater peril. It was not known whether cessation of the menstrual function was responsible for the greater frequency of cancer after the climacteric, and whether, if it were, the same result might not be expected to follow the artificial production of the menopause. Conservation of diseased tubes and ovaries was a step in the right direction. Should not attempts be made to evacuate the contents of an occluded tube without sacrificing it with its ovary, and should not Nature's method of curing an inflamed tube be studied?

DR. T. ADDIS EMMET added to Dr. Chadwick's historical sketch a few personal reminiscences of the earlier days of gynecological surgery, including examples of the prejudice against operations when the Woman's Hospital was first opened. At the first consultation in July, 1855, Dr. Sims pro-

posed to perform laparotomy for a supposed pedunculated fibroid. Dr. Stevens replied that he had never heard of a fibrous tumor, and was opposed to opening the abdomen as a matter of humanity. The operation was not performed. In 1860, when the speaker assisted Sims in operating for a parovarian cyst, they did not care to have witnesses. At the next operation omental adhesions were found, so it was deemed necessary to close the abdomen. When he was appointed to the hospital one of his first cases was an ovarian tumor, and it was impossible to get any one of prominence to consent even to be present, and the case was operated upon with two women as assistants, with fatal results; 1863 and 1864 saw nineteen consecutive recoveries from ovariectomies in which the cobbler's stitch with silver wire was employed, and only brown soap and water were used to clean the instruments and operators.

TREATMENT OF CANCER OF THE CERVIX UTERI BY GALVANO-CAUTERY.

The COMMITTEE, consisting of Drs. Smith, Coe, Watkins, and Janvrin, which was appointed, at the last annual meeting, to investigate the results of this treatment, reported that in two operations done by Dr. Byrne by this method the immediate results were satisfactory. The Committee was continued for the present year.

PRIMARY TUBERCULOSIS OF THE BREAST OCCURRING DURING PREGNANCY.

DR. EDWARD P. DAVIS described a case of this rare condition. The patient was a girl 17 years of age, illegitimately pregnant, the pregnancy having reached seven and a half months. Family and personal history were negative. She was anemic and complained of severe pain in the right breast, whose lower right quadrant contained a hard swelling, movable on the deeper parts. It showed no signs of acute inflammation and the axillary glands were not enlarged. The swelling was first noticed at the sixth month of pregnancy, and no history of violence could be obtained. Microscopic examination of fluid expressed from the breast a month after admission showed tubercle bacilli. After consultation with Dr. W. W. Keen operation was postponed until after delivery. Labor was tedious, convalescence good. No tubercle bacilli were found in the placenta. The child was fed artificially, and six weeks after confinement the breast was amputated by Drs. Keen and Davis. No involvement of the axillary glands was found. Pathological examination showed the existence of an adenoma of the breast which had become infected with tuberculosis. Recovery was rapid. No signs of disease were found in the other breast, and post-mortem examination of the child, which died from marasmus a month later, failed to demonstrate tuberculosis. The infection of the breast probably occurred from the mouth of a tuberculous person. It remained strictly local-

ized, giving no constitutional symptoms, glandular enlargement, or tubercle bacilli in fetus or placenta. Early diagnosis must be made microscopically. To this report was added one operated upon by Dr. Keen as sarcoma, but which proved during the operation to be tubercular.

DR. HORACE T. HANKS, of New York, had seen one such case a year ago in the Woman's Hospital. It was supposed to be cancer and the breast was amputated. The patient died of septicemia in seven days. The pathologist reported the case to be one of tubercular mastitis.

DR. PAUL F. MUNDÉ, of New York, read a paper entitled
PERITYPHLITIS AND APPENDICITIS IN THEIR RELATIONS TO
OBSTETRICS AND GYNECOLOGY.

The recognition of the true pathology of inflammation of the vermiform appendix was of comparatively recent date. Twenty years ago inflammation of the right iliac or cecal region was known as perityphlitis. It was supposed to be situated in the neighborhood of the cecum or typhlon, and to be caused by the transmission of an inflammation or an infection from the bowel, the involvement of the appendix not being suspected. Although a hybrid word, "appendicitis" expressed perfectly the condition of inflammation of the vermiform appendix, and was not likely to be supplanted by the word "scolicitis" recently suggested by Gerster. As applied to the disease in females, however, the term had the disadvantage of conflicting with the name which might be given to inflammation of the uterine appendages. It was not his purpose to discuss appendicitis or perityphlitis generally, but only so far as they might interest the obstetrician or gynecologist. He knew that perityphlitis and perityphlitic abscess did exist independently of the appendix, and referred to such an instance.

Until recently nearly all the cases of appendicitis had been reported as occurring in the male sex, but, of course, there was no reason why the appendix should not become inflamed as readily in the young or adult female. However, the disease had been looked upon as occurring chiefly in the male. The reason for the apparent immunity of women must be sought in the vast preponderance of inflammatory affections of the uterine appendages, pelvic peritoneum, and pelvic cellular tissue. No doubt many had failed to recognize appendiceal exudate and abscess, mistaking it for a pelvic cellulitis or peritonitis on the right side. A proper consideration of the exact site of the inflammatory product, whether it descended into the pelvic cavity or was situated in or above the iliac fossa, must easily have settled the question; but the idea of appendicitis did not occur to us then as now, and so it was not looked for.

Prior to 1894 he had recognized appendiceal abscess in the female in five cases, but, although much interested in them, did not report them for the reason that he supposed such cases were not uncommon in general practice, and he did not then

appreciate their close relation to gynecology and obstetrics. When, however, in September, 1894, a case of appendiceal abscess during the eighth month of pregnancy, which caused the death of the child and premature labor, was seen by him and reported, the profession became aroused to the importance of the subject, and reports of similar cases appeared in the journals. Of late reports of cases in which appendicitis was complicated with inflammatory disease of the right appendages, or in which an inflamed and suppurating tube or ovary simulated an appendiceal abscess, were increasing. He had himself had additional experience in relation to appendicitis occurring during pregnancy and labor, and would call attention to five points in the pathology, diagnosis, and treatment of the disease at these times, namely:

1. The possibility of the occurrence of appendiceal inflammation, either as a new disease or as a recurrence of a previous attack, at any time during pregnancy, or even during labor and the puerperal state. Indeed, there was no reason why a woman should be more safe from the disease then than at any other time.

2. The induction of abortion or premature labor by acute appendicitis, either in consequence of local irritation or through the fatal effect on the ovum of the general hyperpyrexia.

3. The difficulty of diagnosis of the true nature of the case, especially when the pain in the right iliac region is masked by the normal labor pains or the attack occurs after delivery, and the high temperature may be mistaken for that of puerperal septic infection.

4. The necessity for prompt surgical interference, whether the attack occur during labor or the puerperal state.

5. The danger of a greater mortality, owing to the possible postponement of the operation in consequence of the difficult diagnosis, or to the risk of genital infection.

In his first reported case he delayed operation until four days after delivery. In future he would advise early operation rather than take the chances of an intraperitoneal rupture of the abscess. In fact, he would treat the case like any other case of appendicitis. Some cases of appendicitis recovered without suppuration or operation, and he was therefore obliged to leave the indication for operative interference to the judgment of the medical attendant. If labor was in progress there should be even less delay than usual in operating, since the uterine contractions might mechanically produce traction on the appendiceal adhesions and a consequent rupture of the abscess. The difficulty of diagnosis of appendiceal abscess when masked by septic puerperal symptoms must not be overlooked.

The mortality of appendiceal abscess in pregnancy had been rather high, according to the number of cases reported. Abrahams reported seven deaths in seventeen cases, or seven deaths out of ten suppurative cases, all but one being operated upon. This death rate was too high, but was to be attributed probably

to lateness of operation due to lateness of diagnosis. Future records would undoubtedly show better results.

Considering the relations of perityphlitis and appendicitis to gynecology, cases in which the latter occurred simultaneously with acute inflammation or abscess of the right uterine appendages, or in which one disease simulated the other, were naturally more frequent than complication with pregnancy. With the pelvic organs in a healthy condition there was no more difficulty in diagnosing an appendicitis in the female than in the male. There was the exception of those cases in which the appendix was unusually long or was misplaced. Ordinarily in appendicitis the pain, tenderness, and swelling were limited to the spot just above and within the crest of the right ilium, and nothing abnormal could be felt within the vagina. Only seldom did an appendiceal exudate reach so low down as to be perceptible through the right vaginal roof, and then it might be difficult to distinguish it from a perisalpingitis or an adherent pyosalpinx, or even from a true pelvic cellulitis such as was occasionally met with after abortion or delivery at term. An illustrative case was seen by him last December in consultation. The patient had been ill six weeks, and her physician had made the diagnosis of salpingitis on the strength of an exudate felt to the right and in front of the uterus. The author made out, besides, a distinct dulness and also a resistance to pressure in the right iliac region. Bearing in mind that the dulness and tenderness extended from the vaginal roof up to the right iliac fossa, that the mass felt by both was anterior to the uterus and not deep in the pelvis, that the pulse of 110 and temperature of 101.2° F., continuing for several weeks, showed the probable existence of suppuration, he made the diagnosis of appendiceal abscess, the pelvic mass being part of the exudate not yet broken down. Her physician, an unusually accurate observer, did not agree with this, but he was compelled to be convinced when an incision in the right semilunar line opened the appendiceal abscess. The exudate melted away, and the patient was discharged cured in a little over two weeks. She had had several similar attacks in the last three years.

In both diseases—appendicitis and perisalpingo-oöphoritis—the conditions were very similar. There was scarcely one special sign which would afford a decisive clue, except the location of the original pain. In appendicitis it was never in the pelvic cavity or close to the uterus. It was not always in the right iliac fossa or at McBurney's point. Sometimes the chief pain was in the epigastric region, or in the left iliac fossa, or was spread over the whole abdomen. Bimanual palpation (vagino-abdominal) did not cause pain in appendicitis, except rarely when salpingo-oöphoritis might coexist.

When the original exudate of an appendiceal abscess had broken down it was usually found limited to the normal site of the appendix. At times pus might burrow upward or downward, or point in the median subumbilical line, or burst through the right vaginal or anterior rectal wall. The writer had seen

one case of each of these last two. In such doubtful cases the true origin of the pus might be suspected only by its characteristic fetid odor and thin, sanio-purulent character.

While the appendiceal abscess might simulate a pyosalpinx, pus ovary, or pelvic abscess, the reverse might occur—that is, a pyosalpinx or pus ovary might become adherent to the peritoneal lining of the right iliac region and be mistaken for appendiceal abscess. Cases of small ovarian cyst with twisted pedicle had been mistaken for it. Recurrent appendicitis might readily be mistaken for inflammation of the right appendages, unless careful examination was made. In supposed recurrent appendicitis even an experienced examiner might make mistakes. In a recent case he diagnosed a swollen and adherent appendix, but on cutting down through the semilunar line found the nodule was a fibrous tumor, extraperitoneal, but firmly attached to the peritoneum. He had never been able to palpate the healthy appendix, but did not doubt that with very thin and relaxed abdominal walls this might be done, just as the normal Fallopian tube could often be felt under like favorable conditions.

It was evident that the practical point of what had been said related to the differential diagnosis between perityphlitis and appendicitis, as compared with salpingo-oöphoritis. Diagnosis once made, treatment, whether medical or surgical, would be conducted on the lines laid down for each affection. In case of doubt he would prefer making the incision in the right semilunar line, since, if it proved to be an appendicitis, suppurative or not, this was the shortest way to the seat of the disease; and if it was salpingo oöphoritis, pyosalpinx, or ovarian abscess, the diseased organ could quite as easily be removed through a lateral as through a median incision.

DR. W. E. FORD, of Utica, described a case of appendicitis in a girl of 16. He was unable to remove the appendix, but evacuated the pus and fecal concretions. The patient was in fair condition for three or four days and then became septic. He reopened the abdomen, supposing another abscess was present in the region of the appendix, but found only a small amount of pus. Through the vagina a large mass was palpated and over a quart of pus was drawn off from it. This had probably come from the first attack of appendicitis. There was no history of disorders of the uterus or appendages.

Dr. Ford also reported a death from iodoform-poisoning. He had been called to the country to operate upon a young girl for appendicitis. Upon his arrival no tumor could be found in the abdomen, but a large abscess in the pelvis was detected, and two quarts of extremely offensive pus were evacuated through the vagina and the cavity irrigated. Before packing the latter he had called attention to the bright-yellow color of the gauze, but was assured that it contained only ten per cent of iodoform. Not more than one yard of it was used. After the operation the temperature fell and the patient was comfortable for three days, when a very violent delirium came on without fever, and

the patient died in this condition in twelve hours. As a result of the post-mortem the case was pronounced undoubtedly one of iodoform-poisoning. The patient had had a dilated right heart for two years, due to over-exertion in bicycling.

DR. A. LAPHORN SMITH had found appendicitis fairly frequent in women, and in three cases had found the appendix adherent to a pus tube.

DR. E. C. DUDLEY, of Chicago, reported two cases, in one of which infection travelled from the right tube to the appendix, and in the other followed a reverse course. In the first the local surgeon had opened an abscess on the right side. The temperature subsequently rose, and in operating for a second abscess a large, dilated tube was opened. After recovery and one month of health a pelvic abscess appeared on the right side. Upon examination the speaker found no evidence of appendicitis. The local surgeon opened and drained the abscess through the vagina. Another abscess occurred in the region of the appendix, but the patient recovered and has since been in good health. In the second case the local surgeon had diagnosed a ruptured right pyosalpinx, but a hasty examination showed apparently suppuration in the appendix. Upon opening the abdomen a ruptured pyosalpinx was found, with pus free in the abdominal cavity, and the appendix adherent to the tube and also ruptured. The adhesions around the appendix were old and firm, those around the tube recent.

DR. HORACE T. HANKS stated his belief that pus tubes should not be operated upon through the vagina if complicated by appendicitis, and that the latter point should be determined by a careful diagnosis.

DR. BAKER had found the appendix adherent to the right tube in three abdominal sections. In one case they could be separated, but in the others adhesions were too firm and there was a cicatrix between. They were probably cases of appendicitis discharging through the tube. In such cases, if there was the slightest suspicion of complicating appendicitis, the pus tubes should be operated upon through the abdomen.

THE TREATMENT OF SYPHILITIC WOMEN IN PREGNANCY AND PARTURITION.

DR. ROBERT A. MURRAY, of New York, read this paper. He stated that the most prolific cause of miscarriages and stillbirths was syphilis, though little reference was made to this in modern obstetrical works. Ruge had claimed that endometritis was caused in eighty-five per cent by syphilis. The changes which occurred in the placenta and in the bones of infants enabled a diagnosis to be made, even without a history. The changes in the endometrium were similar to the same lesions in other parts of the body. In the fetus the bones were altered by a growth of new cells at the epiphyseal line, with a pink color from vascularity, by the production of embryonic cells in the Haversian canals cutting off the blood supply, and by the production of osteophytes attacking the joints and rendering the

bone porous as in rickets. The diagnosis of syphilis might be made by eliciting a history of miscarriages, and examination of the pregnant woman for enlarged glands and scars of syphilides, if the husband denied having the disease. Inunctions of mercurial ointment had proved the most efficient treatment. Given by mouth the drug did not control the case, which usually terminated in a miscarriage, though the symptoms might be relieved. By inunctions forty to fifty per cent were carried through pregnancy if seen before the third month. In the first pregnancy, when the husband was syphilitic and the woman not fully so, the physician might be called to see her for a sore throat, the first syphilide appearing in the tonsil. The child should be treated, at first through the mother's milk, later by inunctions. A mother could always nurse her own child without contracting syphilis.

DR. EDWARD P. DAVIS advised inspection of the genital tract before making a diagnosis of syphilis. The anemia of that disease was responsible for its most dangerous effect upon pregnancy. If iron and arsenic were given freely, with inunctions of mercury, the woman might be carried through. Anemia was very important in syphilitic children also. In reference to nursing by the mother, he held that she was often in such bad condition that modified milk was better for the child. He mentioned the fact that syphilis sometimes caused an endometritis, though there might be no other symptoms of the disease.

DR. MURRAY stated, in closing, that he had intended to convey the idea that the child should not be given to a healthy woman to nurse, but should be fed with modified milk. He had omitted the treatment of anemia by iron, arsenic, and tonics.

DR. A. PALMER DUDLEY, of New York, read portions of an unfinished paper upon

SOME PATHOGNOMONIC PHYSICAL SIGNS OF CHRONIC
GONORRHEAL INFECTION IN WOMEN, AND THEIR VALUE IN
DIAGNOSIS OF PELVIC DISEASE.

He said that when gonorrhea was transmitted in lawful sexual intercourse the infection was rarely acknowledged to the woman by her husband, and consequently the disease usually reached the stage where surgical treatment was necessary before the case was seen. This accounted for the infrequency with which gonorrhea was seen in women, other than prostitutes, before it had become chronic. The positive signs of gonorrheal infection were inflammatory changes of the structures at the vulva with painful micturition. The mucous membrane of the lower half of the meatus was everted and of a deep red color. The vulvo-vaginal glands were large and tender, their secretion muco-purulent, and the mouths of their ducts protruding and deep red in color. In the early stages the gonococcus could usually be found in the pus obtained from them. On the vaginal mucous membrane the follicles could be readily traced

as spots about as large as the head of a pin and covered by a grayish-yellow secretion. The rugæ of the cervix retained the gonococci most tenaciously, and in order to succeed in aborting a gonorrheal infection of the uterus it was necessary to see the case before the germs had entered that organ. Under treatment the vesical and urethral symptoms might be relieved and the parts affected apparently become normal, but this really never occurred. He had never seen a normal vulva after a gonorrheal attack. The mucous membrane of the meatus remained pouting and resembled a urethral caruncle. The glands in the vestibule could be seen as red spots, and the mouths of the ducts of the vulvo-vaginal glands never presented a normal appearance but remained unduly prominent. The latter was the most important physical sign of chronic gonorrhea. In explanation of this change he cited Sânger's belief that the disease did not cease after the gonococcus had disappeared, but that a chronic inflammation continued, with acute exacerbations, a residual or latent gonorrhea. Personally he could make no positive statements, as he had not studied the changes microscopically. The ten points upon which he relied for the diagnosis of chronic gonorrhea were: (1) pathological changes in the urethra causing stricture, pain at the neck of the bladder and upon micturition, (2) abscess of the vulvo-vaginal glands, (3) chronic senile vaginitis, leucorrheal discharge from the cervix, (5) dysmenorrhea from stricture at the os internum, (6) structural changes in the endometrium causing menorrhagia. (7) changes in the Fallopian tubes, (8) the effects of the gonococcus upon the ovaries, (9) accompanying displacements of the uterus, (10) sterility.

EXECUTIVE SESSION.

At the business meeting held at the close of this session the following officers were elected for the ensuing year: President, DR. PAUL F. MUNDÉ, of New York; Vice-Presidents, DR. ARTHUR W. JOHNSTONE of Cincinnati, and DR. E. C. DUDLEY of Chicago; Secretary, DR. J. RIDDLE GOFFE, of New York; Treasurer, DR. J. MONTGOMERY BALDY, of Philadelphia.

Third Day, May 6th.

DR. THOMAS ADDIS EMMET, of New York, read a paper entitled

WHEN TO AMPUTATE IN PREFERENCE TO THE USUAL OPERATION FOR LACERATIONS OF THE CERVIX UTERI.

He said that it was thirty-five years since his operation for laceration of the cervix was first practised, and that it had been so long tested as to demand no defence. The verdict of those who had had great experience was that when properly performed in suitably selected cases it gave the best results. He wished to point out certain conditions, however, which might

be remedied better by another operation. For a long time he had thought that careful local and general treatment could cause complete involution, but he now believed that some cases were better treated by amputation and careful after-treatment. The latter was very important. The stump should not be left to cicatrize. In some cases the nutrition might be so much impaired that no cure could be obtained until the local cause had been removed, and in these early surgical treatment was demanded. The patient should first be given the benefit of local treatment and the cervix saved if possible. When the accepted operation could be employed with success it should be performed, but the long existence of local changes might contraindicate it. Preparatory treatment was most important, and the final result depended largely upon it.

In cases of laceration extending beyond the internal os, involving the pelvic connective tissue and vaginal wall, it was often long before reflex symptoms appeared and the general health was impaired. Frequent pregnancies prevented cicatrization of the laceration, often reopening it. Finally, during a longer interval between pregnancies, cicatrization would occur, obstructing the circulation in the flaps, and the mucous follicles would undergo cystic degeneration. When the scar tissue had been removed in operating, the flaps could sometimes not be apposed well on account of the presence of these cysts, but their puncture would often obviate the difficulty. In many cases it was wrong to shut in such diseased tissues from drainage; marked reflex symptoms would frequently follow and the uterus increase in size. When health was restored by amputation the old condition would be found unchanged, as in a long-inflamed tonsil. Different stages of degeneration were seen. When the cervical tissues were soft and friable the need of amputation might not be recognized until trachelorrhaphy had been begun, and would not be appreciated even then by the average operator unless he went sufficiently deep. Dense tissue was found by deep incision, and might be removed in a single piece, and the flaps approximated usually without difficulty. If the cervix was very soft, dense tissue would exist along the periphery, toward the canal and in the angles. It was different from the homogeneous tissue in the scar, more dense, and would cut like sole leather. With such a condition a uterine canal could not be formed satisfactorily; the sutures would cut out. This induration could not be relieved by local treatment. In some cases epithelioma subsequently developed in it. In the operation which the author advised the uterus was to be drawn steadily and gently downward and held by an assistant just within the vaginal outlet. The line of vaginal junction should then be established in order to avoid injuring the bladder or peritoneal cavity. With Emmet's curved scissors a conical excavation should be made in the cervix, cutting from without inward, thus avoiding the bladder and peritoneum. As each vessel was divided the neighboring tissues should be caught up by an assistant with forceps, arresting hemorrhage and

furnishing a point of traction. The cervix should be removed in pieces until healthy tissue was reached. The vaginal mucosa should be united to that of the cervical canal by silver-wire sutures, as was described in the author's work on gynecology. This method secured primary union, avoided secondary hemorrhage and abscess formation and cicatricial contraction. After operation the uterus should be replaced with care in its natural position. Uniformly satisfactory results would be obtained if silver-wire sutures were employed, if the patient were kept in bed a few weeks, and the sutures allowed to remain until the nineteenth or twentieth day. Precautions against sepsis should be as rigid as in laparotomy in order to insure success. In conclusion he stated that while twenty years' experience had shown that amputation was sometimes preferable, the old operation should be done whenever possible.

DR. H. T. HANKS was pleased with the views held by Dr. Emmet, as some papers recently read before the Society had tended to show a preference for amputation.

DR. PAUL F. MUNDÉ considered the Emmet operation a great improvement over Schröder's, which put vaginal tissue into the cervical canal and shortened the cervix, disturbing the uterine equilibrium, thus tending to cause displacements. He had often operated as Dr. Emmet had advised, but had introduced the sutures in the old way. Emmet's operation avoided shortening the cervix somewhat. The speaker applied two side ligatures to the branches of the uterine artery, amputated the cervix, and united the vaginal covering to the cervical lining by catgut sutures. He always added anterior and posterior colporrhaphy, and usually Alexander's operation, where there was hypertrophy and prolapse of the uterus. While he had formerly used catgut sutures, which did not require removal, he should employ silver wire as suggested by Dr. Emmet.

DR. J. RIDDLE GOFFE was opposed to the term "amputation of the cervix," on the ground that it gave a false idea of the operation to the general practitioner. He thought that all cases of laceration could be successfully treated by the old Emmet operation. If one lip were abnormally long or diseased, it might be trimmed off after approximating the flap, preserving, however, as much of the cervix as possible in order to maintain the equilibrium of the uterus. An iodoform-gauze tent placed in the cervical canal for three or four days would keep it patent.

DR. A. PALMER DUDLEY believed that Dr. Emmet wished it understood that his operation was suitable where conservative plastic work could not be done. In some cases the body of the uterus was in the normal plane and the cervix at the vulva. The operation described by Dr. Emmet was the best for such a condition. This was, strictly speaking, an amputation of the cervix.

DR. BACHE EMMET could not understand how amputation could be avoided in such cases as Dr. Emmet had described. That operation was applicable to cases where there was no

danger of producing retroversion by it, and if the cervix was hypertrophied it must be done. The telescopic cervix described by Dr. Dudley did occur, but more often the cervices were really atrophied and the loose vaginal walls were drawn down, merely simulating hypertrophy, as was shown by placing the patient in the genupectoral position. Amputation was suitable for these cases, but in a less degree. It was an amputation, in whatever direction the incision might be made. The more conical the incision the nearer did the operation approach Schröder's type; the more nearly transverse the greater the resemblance to that of Emmet.

DR. A. P. DUDLEY said that his remarks referred to really elongated cervices, with the cul-de-sac four and a half inches from the vulva—not to prolapse of the vaginal wall. He had seen one such case in a virgin of 40.

DR. E. C. DUDLEY claimed that he did a modification of Schröder's operation, dividing the cervix laterally on each side. He drew the flaps far apart, exposing all the diseased tissue, removed this as did Schröder, and introduced the sutures as he did, on each side, and then the lateral sutures in the same way. This shortened the vaginal wall less than a transverse amputation, allowed the removal of all diseased tissue, and substituted the vaginal mucous membrane for the diseased cervical tissue lining the canal. This was as good as the natural lining, though Dr. Mundé thought otherwise.

DR. MUNDÉ remarked that he did not see how this operation differed from Schröder's.

DR. T. A. EMMET closed the discussion by saying that his operation was first attempted by Dr. Sims, and that he himself had done it in 1866. Schröder's operation was really Emmet's called by a German name. The uterine tissue had atrophied so that it was not where it appeared to be, and the cysts were high up the canal. He did not, as he had already stated, cut off the cervix transversely in order to avoid injuring the bladder. The speaker began just within the canal and made his incision in the same manner as did Schröder, except that, whereas the latter made a square shoulder at the lower end of the flap, he made it sharp. Amputation was the only applicable term; the lesion could not be treated otherwise. The idea of difficulty arising from the removal of the whole cervix was purely theoretical. The operation was not intended to replace the operation for laceration unless this failed to cure or epithelioma might occur. In regard to Dr. E. C. Dudley's procedure, he said that by separating the flaps far enough and drawing up the tissue at the angle to the common vaginal level, a good view of the field of operation could be obtained and each vessel tied as it was cut. Unless hemorrhage was arrested in this way the operation was frightful.

DR. A. LAPHORN SMITH, of Montreal, read a paper upon

THE RESULTS OF ONE HUNDRED AND FORTY-SEVEN
OPERATIONS FOR RETROVERSION OF
THE UTERUS.

He stated that the majority of operators considered it unjustifiable to open the abdomen if the disease could be cured otherwise. His paper was based upon 94 ventrofixations and 53 Alexander's operations. He held that ventrofixation was the only operation that should be entertained in cases of retroversion with adhesions, but it should not be done when the uterus was movable and when there was no disease of the appendages requiring abdominal section, in which cases Alexander's operation had given excellent results. There should be no death rate to either operation; neither should there ever be hernia, either ventral or inguinal, if the following directions were followed. The two operations were equally easy, although a few years ago the author was opposed to Alexander's operation on account of its difficulty. Now he could invariably find the ligaments, and generally in from half a minute to a minute and a half. He warned his hearers not to do Alexander's operation if there were any adhesions, even if they were loose enough to permit the uterus to be lifted up, because they would be put upon the stretch and would drag so much upon the ligaments as to finally pull them out of their anchorage. In laying down the technique of Alexander's operation he placed great stress upon the importance of putting aside all cutting instruments as soon as the skin, superficial and deep fascia had been cut through. Instead of laying open the inguinal canal, as advocated by some writers, he advised his hearers not to cut a single fibre of the intercolumnar fascia, which was the principal support of the pillars. He said that the slightest nick of the fascia of the internal oblique would lead to a false passage and failure to find the ligament. If no cutting instruments were used, but only a Péan's forceps to draw out the ligament, there would be no difficulty in finding it, because there was nothing else in the canal but the ligament. In fact, with the eyes bandaged it could be found and drawn out by simply introducing the closed forceps and then opening them, when the round ligament would fall into them and could be drawn out. He advocated the use of fine silk-worm gut, which could be thoroughly sterilized and left in permanently. Occasionally he had been obliged to remove a buried stitch. In case any fibres of the intercolumnar or internal oblique should be accidentally cut, great care should be exercised in sewing them up to avoid hernia. He had only had one relapse after ventrofixation and one after Alexander, which were both subsequently repaired. Several of the cases of ventrofixation had since become pregnant and had had normal confinements. Also, several cases of Alexander had had children. Many of the patients had been bedridden invalids for years before and were now enjoying excellent health. Both operations, each in its proper sphere, had given the greatest

possible satisfaction. He curetted, amputated the cervix, did the Stoltz operation on the anterior vaginal wall and Hegar's on the posterior at one sitting, in every case if necessary, as adjuncts to either ventrofixation or Alexander's operation.

DR. MATTHEW D. MANN contributed a paper on

INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS
FOR POSTERIOR DISPLACEMENTS OF THE UTERUS.

He wished to call renewed attention to an operation for the treatment of posterior displacements which he proposed to the profession in 1895. The operation did not seem to have attracted the attention which it appeared to him to have deserved. His experience with it had been so considerable that he felt justified in asking again for recognition. The operation was first done June 1st, 1893, and was described as follows: The patient being placed in the Trendelenburg position and the abdomen opened, adhesions are broken up, any other necessary operative procedure completed, and the uterus replaced; then, placing a large, flat sponge over the intestines, the uterus is pulled up as near the abdominal wound as possible. The round ligament of one side is made tense by pulling the uterus to the opposite side, and is seized by two long-handled hemostatic forceps, the points of seizure dividing the ligament as nearly as possible into three equal portions. The next step consists in passing a needle, threaded with silkworm gut or silk, through the loop nearest to the abdominal wall, and then under the point where the round ligament is inserted into the uterus, a considerable quantity of uterine tissue being included in the suture. The hemostat being removed, the loop of ligament is tied to the uterus. A second stitch is passed through the ligament just as it leaves the abdominal wall, and then through the loop at that portion of the ligament nearest to the uterus. The ligature is tied and cut as before. In this way the ligament is doubled on itself twice and three thicknesses of round ligament are stretched between the sides of the pelvis and the wall of the uterus. The same thing being done on the opposite side, the wound is closed as usual. The cases in which this operation was indicated were those in which, a backward displacement of the uterus existing, the abdominal cavity is opened for any purpose, such as reparative work on diseased tubes and ovaries, the breaking-up of adhesions, removal of one tube and ovary, removal of an ovarian cyst, a pediculated fibroid, etc.; also in cases where Alexander's operation has been tried and has failed. He believed that in every abdominal section for pelvic disease we were doing only half of our duty if we left a malposition of the uterus uncorrected. The operation did not compete with Alexander's operation, which he had adopted and now thoroughly approved, and which fulfilled the indications in most uncomplicated cases. Where both tubes and ovaries were removed, or where the woman had passed the menopause, the operation of ventrofixation would perhaps be found easier; but

he considered that operation, which was neither anatomically nor physiologically correct, contraindicated when the possibility of subsequent pregnancy exists. In the case of a retroverted and adherent uterus it might be preferred to open the posterior cul-de-sac and free the uterus from adhesions, and then do Alexander's operation, as suggested by Polk. He had tried this a number of times, but with rather indifferent success, and preferred his own operation where it is necessary to open the abdomen at all. He did not think it applicable to cases of prolapse or cases of retroversion where the utero-sacral ligaments were very much relaxed. He had a few times supplemented it by a shortening of these ligaments. He had performed the operation fifty-eight times, and, although he had been unable to follow all his cases, he had so far never met with a failure. There can be no primary failure, nor did he see how the ligaments could stretch out again. He had been unable to hear of any case in which pregnancy had occurred following the operation. He had never met with any instances where the ligatures had given trouble. There had been deaths, but none which could be attributed to the operation on the ligaments. Previous to the adoption of this operation he had operated on the round ligaments by the methods of Wylie, Polk, and Dudley in forty similar cases. There were a number of relapses, and this led him to devise the method here described.

A PRELIMINARY REPORT ON A NEW METHOD OF VAGINAL FIXATION.

DR. EDWARD REYNOLDS, of Boston, read a paper on this subject. He wished, not to advocate, but to suggest a new operation. This was founded on the belief that as the forces which held the uterus forward normally were small and easily disturbed, an operation which could accomplish this result by slight forces was best. In the operation which he described the incision was made as in vaginal hysterectomy, but extended just beyond the cervix laterally. The bladder was separated from the uterus up to the level of the internal os, which had been located by a sound. The uterus was then replaced and the junction of the vesical and vaginal walls determined by a sound in the bladder. A cervix needle, threaded with a silk carrier, entered the vaginal wall a little in front of the separation between the bladder and vaginal wall, and ran obliquely through the tissues, emerging on the cut surface just beyond its junction with the bladder. A silver suture was threaded on the carrier and drawn through the anterior vaginal wall and the cervix at the level of the internal os, emerging at a similar point on the opposite vaginal wall. A second suture was introduced as close as possible to the first, and, keeping the uterus well forward, the sutures were twisted and turned down. As considerable tension might be expected, coarse wire was advised. The cut edges of the mucous membrane were sutured with fine catgut. It was suggested that a non-absorbable buried suture might be advisable. If the original attachment of

the anterior vaginal wall was so low that exact apposition of the edges of the cervical and vaginal mucous membranes was not obtained by traction with tenacula, the mucous and submucous tissues of the vaginal wall should be freed a half-inch forward from the edge of the wound, or the ends of the superficial incision turned forward along the anterior vaginal wall, as in Hadra's operation. In applying the superficial sutures care should be exercised that the tension was not increased on those more deeply placed.

Temporary retroflexion occurred in two of the three cases in which this method had been employed, one week after operation, but one came forward spontaneously, and the other when the patient had been placed in the knee-chest position. This operation was not applicable if adhesions existed, or with heavy, subinvolved, and prolapsed uteri. It was good if the uterus was small and movable, and the vaginal wall was attached to its tip. It was for this class of cases that it was designed, and the author showed by diagrams how such a low attachment of the anterior vaginal wall would throw the uterus backward. If laceration of the pelvic floor was associated perineorrhaphy might be added. The procedure described possessed all the advantages of vaginal fixation, a smaller mortality, and should not interfere with pregnancy, as the cervix alone was concerned in the operation.

SHORTENING THE ROUND LIGAMENTS THROUGH THE
ANTERIOR VAGINAL FORNIX FOR POSTERIOR
DISPLACEMENTS OF THE UTERUS.

DR. J. RIDDLE GOFFE, of New York, gave an outline of his paper on this subject. He said that as the employment of a large number of drugs for any condition showed that none was satisfactory, so it was in regard to operations. The general trend of opinion was that the round ligaments should be utilized. The lack of shock in vaginal operations was a great advantage. Mackenrodt's vaginal fixation cured anatomically and was satisfactory to the patient, but gave disastrous results in pregnancy, so had been abandoned. Some avoided the dangers in parturition by allowing more play to the fundus by attaching it to the fundus of the bladder, or by attaching the round ligaments to the vaginal incision, or by shortening the round ligaments through the vagina.

The technique which he employed was to draw the uterus down toward the vulva, make a transverse incision at the utero-vaginal junction, and dissect the vaginal tissues off from the bladder until the peritoneal reflexion was reached. The central point of this incision was then caught up and the anterior vaginal wall drawn taut. A longitudinal incision was made, extending to the neck of the bladder, and the bladder dissected from the anterior vaginal wall down to the cross incision, freeing an inch and a half on either side. The peritoneum was broken through, and the finger hooked over the

fundus of the uterus, which was drawn over into the vagina. Adhesions might be broken up by the fingers and any necessary conservative work done upon the appendages. A round ligament was caught with the fingers, and an incision, one and a half or two inches long, made through its peritoneum with a blunt instrument, such as an aneurism needle. This instrument was hooked over the round ligament and the latter dissected out from its peritoneal covering. The ligament was drawn up two or two and a half, or even three inches as was possible in some cases, was doubled upon itself, and the folds stitched together with several fine silk sutures. The same was done upon the opposite side: the uterus was replaced in the abdominal cavity, and a strip of gauze placed between it and the bladder. The longitudinal incision was closed with a running catgut suture.

The writer had employed this method in eight recent cases, and the results had so far remained satisfactory in all, with the exception of one in which the round ligament was not dissected out from its peritoneal covering. Dr. Lusk had offered the objection that too much traumatism was inflicted for the purpose to be attained, but an operation should be judged by its actual results, and in this case they had not been unfavorable in any way. After Alexander's operation patients frequently complain of considerable pain, and two of the author's cases had experienced pain of a similar character.

DR. PAUL F. MUNDÉ, in opening the discussion upon the last four papers, said that as he had been the first to do Alexander's operation in this country, beginning in 1884, it gave him great satisfaction to see it gradually accepted, especially in New York. For a long time he had stood almost alone and his reports had been ridiculed and even censured. It had been said that the operation had no future. It now had both a past and a future. Others had failed only because at first they did not know how to operate. Dr. Laphorn Smith had given an admirable description of the first portion of the technique which the speaker had employed for nine years. Dr. Smith's improvement was in not opening the external abdominal ring. He, personally, had always opened it, as he might otherwise fail to find the ligament; and although he had done the operation upon nearly one hundred and thirty patients, he did not yet feel satisfied to rely upon picking up the ligament by touch, as had been suggested by Dr. Smith, though he should try it. He agreed with him that no knife should be used after reaching the intercolumnar fascia. He did not sew the round ligament to Poupart's, as Dr. Smith did. Of his own cases the results had been permanent in all which he had seen again, if the immediate effects of the operation had been favorable. Twenty or thirty had since become pregnant. The operation was appropriate for movable retroflexed uteri with normal appendages; not for prolapse, unless plastic operations upon the vaginal wall and perineum, and amputation of the cervix by Emmet's method, if necessary, after a preliminary curettement,

were also done. For prolapsus it was not as good as for retroflexion, but the best operation for the former condition had not yet been discovered. He had stopped performing ventral fixation for uncomplicated retroflexion or prolapse after doing twelve such operations, as he had had one death from intestinal obstruction. In a case which he had recently seen a ventral fixation must have been attempted without opening the abdominal wall, as he found the scars upon the abdominal wall and a vesico-abdominal fistula, evidently formed by passing one of the sutures into the bladder. Mackenrodt's operation was logically and anatomically wrong, and the speaker never performed it. He had had three great successes with Dr. Mann's operation, but would do it in future only when necessary to open the abdomen for some other reason.

DR. BEVERLY McMONAGLE said that the treatment of retroversion should be varied according to circumstances. For simple cases Alexander's operation might succeed, but it did not raise the uterus sufficiently. It was also difficult for many to perform; suppuration occurred at times in the wound; and if the incisions failed to heal well each might become the seat of a hernia. In cases with adhesions and diseased tubes and ovaries Alexander's could not afford relief without also opening the abdomen. He could best manage those cases by opening the abdomen and suspending the uterus by Kelly's method—a true suspension. The uterus subsequently sinks and tilts forward, allowing the intra-abdominal pressure to act upon the fundus and maintain it in that position. He had treated over one hundred cases in this manner, with excellent primary results and but one failure. Any fixation was absolutely bad. Some women upon whom he had performed suspension had done well in subsequent pregnancies. In one case, who had previously borne one child, he had removed one tube and ovary, freed adhesions, punctured cysts of the other ovary, and suspended the uterus; she had since become pregnant and given birth comfortably to triplets, with an old woman as her sole attendant. He considered that the scar in vaginal operations gave rise to more trouble than that in the abdominal wall. He had done only four such operations in women who had passed the menopause. Some operators in California were enthusiastically in favor of it, but he had occasionally heard their patients complain of a numb feeling and pain in the vagina.

DR. A. PALMER DUDLEY announced that he would never do vaginal fixation again, if possible, as he had lost his first case from intestinal obstruction. In cases operated upon by this method death of the fetus at eight months was common, because the uterus was imprisoned and the child was injured in attempting to free itself. In another case, now at the seventh month, he was obliged to use morphine daily for the pain. Alexander's was also a bygone operation in his hands until he could diagnose perfect appendages. Dr. Goffe's method was Dudley's except for the approach through the vagina. He had done Dr. Mann's operation and considered it better than

his own. The vaginal approach to the round ligament was not the better, as it was not the more direct, and as there was danger of injury to the bladder and ureters and to the vaginal wall. He should never employ ventrofixation in an old woman, but should do vaginal hysterectomy instead.

DR. CHARLES P. NOBLE had lost another patient from infection in pregnancy after ventrofixation, since last year when he had published a paper upon the subject. Suspension should not be classed with fixation, as the Kelly operation did not have the same results as the latter. He did not consider Alexander's a failure if the ligament broke during the operation, as he had found it in three cases after this accident had occurred. The abdomen could be opened if necessary under such circumstances, a procedure which was no more dangerous than the ordinary median incision. Some cases had complained of pain after the operation, a trouble which he had referred to the permanent buried sutures until Dr. Goffe reported a similar occurrence after his vaginal operation. He had done about thirty cases in three years, with no herniæ. If desired the operation could be terminated by practically doing a Bassini, a procedure which gave excellent results in ordinary cases of hernia.

DR. H. J. GARRIGUES could not agree with Dr. Mundé that in Alexander's operation the knife should not be used after reaching the external ring. It was necessary to use it to divide the fibres connecting the ring and ligament. He had missed the ligament only in his first case. He often added colpoperineorrhaphy. In one case examined after labor the uterus was found in good position. Real prolapse, a descent of the uterus, was often confused with hypertrophy of the supravaginal cervix. If the sound entered too far the cervix should be amputated and involution would follow. He had removed as much as five inches in such a case. In Alexander's operation the scars were so situated as to be covered by the pubic hair.

DR. E. E. MONTGOMERY read a paper on

PELVIC BLOOD COLLECTIONS AND THEIR TREATMENT BY VAGINAL INCISION.

He spoke of ruptured ectopic gestation, tubal abortion, ruptured varicose veins, injury to the ovary, tube, or uterus, and slipping of ligatures, as causes of these collections. Intraperitoneal rupture was followed by serious symptoms of shock, and death might rapidly occur. In extraperitoneal rupture shock was not as marked; pressure symptoms might be present, also anemia and disturbed menstruation, and a tumor would be felt near the uterus, which would be displaced laterally by it. He did not enter upon the consideration of methods of treatment of the acute stage, but, where the collection had existed for a length of time, advocated vaginal incision, whether the collection were free in the peritoneal cavity, encysted, or extraperitoneal, as justifiable and proper treatment. While it was true

that such collections were disposed to be absorbed and disappear, the patient would undergo more danger from infection and consequent suppuration than she could possibly experience from vaginal incision; convalescence was greatly expedited and the subsequent health of the patient favored by this procedure. He preferred a free incision, to be made with the thermo cautery, followed by irrigation, the ligation and removal of tube and ovary when found to be the source from which the hemorrhage had arisen, and subsequent packing of the pelvic cavity with sterilized iodoform gauze. Puncture or aspiration should not be done, as these furnished no drainage.

DR. PHILANDER A. HARRIS would take no exception to anything in the paper. He wished to report two cases of hematocele which he had observed. The first probably resulted from torsion of the pedicle of an ovarian tumor about half the size of a child's head. The pedicle was twisted two and a half times. Removal of the tumor and hematocele was followed by a good recovery. In the other case he had been called to see a patient two weeks after a normal confinement, with the history of an abscess of the vagina which had discharged spontaneously two days before, discharging about a pint of pus, and had closed. A large tumor which bulged into the vagina was incised and about a pint of pure blood withdrawn. The origin of the hematocele could not be ascertained.

DR. BACHE EMMET said that if a case had not been under his own observation and he could not tell whether intra- or extraperitoneal rupture had occurred, he would open through the vagina into the broad ligament first, and thus avoid entering the peritoneal cavity if it proved to be extraperitoneal.

SOCIOLOGICAL ASPECTS OF GONORRHEA.

DR. E. W. CUSHING, of Boston, read a paper on this subject. He said that the remote effects of gonorrhea were most important, and influenced not only those individuals who would not remain chaste, but nations as well by checking reproduction. The suffering usually fell on the innocent wife, the disease progressing from the vagina through the uterus to the peritoneum, from the urethra to the kidney, to the endocardium and elsewhere. In childhood it was most destructive. We were apparently powerless to prevent the disease entirely, as the social evil was as old as humanity and human nature was a fixed quantity. The course of the disease was seen through all history and literature, as he showed by quotations. In this country the people were living under conditions which had never existed before, and probably never would again. The country had been rapidly populated; the standards of wealth changed; the press was spreading the details of all forms of crime; under the present circumstances many young women were living alone in boarding houses, possessing the desire for luxuries, yet without the means to gratify their wishes; the debauch laws were lax; and at the exposition recently held in Chicago new forms of vice were introduced from all parts of

the earth. The vital question was, What could be done to limit gonorrhea? Suppression had never succeeded, and could not. The evils of enforcing laws of such a character would give rise to conditions worse than the present. Gonorrhea was too difficult to diagnose, too latent, to prevent its spread by those who, though not prostitutes, were unchaste and concealed their disease, giving others a false sense of security by their apparent innocence. Legislation would increase the opportunities for blackmail by the police, as had been proven in other countries. It would be manifestly unjust to punish the woman and not the man, and in order to succeed it would be necessary to sequester both, which was impossible. The physician's duty was to counteract as far as possible the spread of the disease and to cure the victims. The former could best be accomplished by instructing the community, as public opinion was the only support which could have a great effect. Laws could not be passed which would be effective, for this reason. Marked advances had recently been made in sanitary regulation, and when the public had been educated concerning gonorrhea, legislation would follow. It was the duty of the general practitioner to aid this in a quiet way. Parents should be taught to instruct their children. The profession should feel the responsibility of actually curing the disease in men, and treatment should be freely provided in clinics for those who were unable to remunerate a physician for such services.

DR. H. J. GARRIGUES referred to an article which he had recently published, entitled "Protection for the Future Wife and Children," which, he said, covered part of this ground, pointing out to the general practitioner that gonorrhea in woman was one of the most serious diseases and often baffled the best efforts at treatment. He believed in making a strong appeal to young men to resist temptation or use protectives, as one intercourse with a gonorrheal woman might kill a wife subsequently or demand an operation which would unsex her. One-half the cases of blindness which had existed since birth were due to this cause. Supervision was of greater value than Dr. Cushing believed. It was unable to prevent gonorrhea or syphilis, but in countries where it was applied those diseases were somewhat limited.

DR. WOODS HUTCHINSON, of Buffalo (by invitation), said that he had been greatly interested in this subject for the past three or four years, and that the results of his investigations substantiated Dr. Cushing's paper. There was, however, another side to the question. Gonorrhea was a selective and eliminative process. It did not kill prostitutes, who usually died by alcohol, but it sterilized them in one sense, probably to the end of life. This class was usually supposed to be constituted by women of all classes, but they were really the most ignorant, illiterate, and undesirable, and gonorrhea eliminated these. It had been claimed that the whole effect fell upon the woman, but bacteriological investigations had shown that this was not true. Some sterility occurred temporarily or perma-

nently in man. Masterly inactivity might be the best treatment, leaving the disease to cure itself, but educating women not to marry debauchees.

DR. ASHTON, of Philadelphia, remarked that in Paris the most dangerous prostitutes, the clandestine, were not under police control. Gonorrhea and syphilis had been shown to increase in frequency under legislation, so it was questionable whether it should be advised. It was known that the social evil existed, but the passage of laws had had the effect of recognizing it; late marriages were common, and men cohabited with mistresses, yet public opinion did nothing to prevent it. In this connection he instanced the case of a Parisian woman of good family who had no hesitation in pointing out her son's mistress as she passed. Dr. Cushing had struck the keynote—education. Selfish interest was what action must be based upon. All would avoid small-pox; none but the medical profession shunned gonorrhea and syphilis, seeing nothing in a urethral inflammation and a sterile wife.

DR. A. P. DUDLEY, in closing, urged that in cases where the disease was recognizable it should be treated personally, not merely allowing the patient to use douches. If the signs of gonorrhea were found the physician should look for urethral inflammation and treat it; he should remove the vulvo-vaginal glands, if infected; if senile vaginitis were found it should be treated accordingly and the patient acquainted with its cause; if a diffuse leucorrhea were present he should look beyond the uterine mucous membrane. If dysmenorrhea were complained of he should inspect the condition of the internal os, and would be prepared to differentiate between cases curable by curettement and those which were not. It had been said that if the tubes were once infected with gonorrhea the patient would be always barren, but he had removed a gonorrheal tube on one side and the woman had become pregnant later. If changes were detected in the ovary it should be removed; for accompanying displacements it was not sufficient to do an Alexander's operation and leave the cause untreated. If the patient were sterile the surgeon should not promise a cure. He had recently seen a case of pelvic inflammation, examined the vulva and palpated the vagina and uterus, and asked the husband for a history of gonorrhea. After a denial he was positively charged with it on the evidence of the examination, and acknowledged two attacks. His wife had had three stillbirths and four or five miscarriages. This illustrated the necessity of searching the husband's history in a suspected case. When the abdomen was opened irrigation of the tube might be followed by recovery.

The retiring President, DR. JAMES R. CHADWICK, briefly introduced his successor as one of the founders of the Society, an energetic worker, and a constant contributor.

DR. PAUL F. MUNDÉ thanked the members for the honor of the election and hoped that they would aid him in making the next meeting as successful as the present and those preceding it.

REVIEWS.

TRAITÉ DES MALADIES DE L'ENFANCE. Edited by J. GRANCHER, J. COMBY, and A. B. MARFAN. Vol. I., pp. 814. Paris: Masson & Company, 1897.

This is the first volume of a projected system of diseases of children, to be published under the direction of Drs. J. Grancher, J. Comby, A. B. Marfan, and a long list of collaborators, including nearly all the well-known names of pediatricists in France, and some of other countries as well. The plan is a comprehensive one, embracing five large volumes. In the preface Grancher says that such a system will not only be useful, but is imperatively demanded, the existing works in French medical literature being either too condensed or out of date, the past ten years having witnessed a revolution in subjects so all-important as the etiology, contagion, and prophylaxis of transmissible diseases. The study of heredity also has done much toward the right understanding of syphilis and alcoholism. Therapeutics has become enriched by many discoveries, paramount among which is the antidiphtheritic serum. The first volume contains three chapters, with twenty-eight subdivisions, and treats of the Physiology and Hygiene of Infancy. Infantile Posology, the Exanthemata, Vaccine and Vaccination, Mumps, Pertussis; Typhoid, Glandular, Herpetic, and Yellow Fevers; Grippe, Miliaria, Asiatic Cholera, Malaria, Tetany, Hydrophobia, Erysipelas; Septic Infection of the Fetus, New-born and Nursing Infants; Articular Rheumatism and Polyarthrititis, Diphtheria, Syphilis, Tuberculosis, and Scrofula. Abundant details are given without undue prolixity. Nearly one hundred pages are allotted to diphtheria (by Sevestre and Martin), which is treated of in the fullest and most satisfactory manner. Intubation is made clear by a series of illustrations, and serum therapy is discussed at length.

Should the succeeding volumes be equal to the first, the "Traité" will be a distinct addition to medical literature. Seldom is a system so well planned, and the execution of the present work leaves nothing to be desired.

ATLAS AND ESSENTIALS OF GYNECOLOGY. By OSCAR SCHAEFFER, Privatdocent in Obstetrics and Gynecology at the University of Heidelberg. With 173 colored plate illustrations and 54 woodcuts. Pp. 288. New York: William Wood & Company, 1897.

The plates in this volume are excellent in design and well chosen in subject. They are intended to take the place, so far as is possible, of personal clinical observation, and to this end are partly schematic and partly drawn from nature. The text.

is made as practical as possible. The plate explanations contain the purely scientific, anatomical, microscopical, and clinical notes; the text proper treats of malformations and arrests of development, changes in shape and position, inflammations and trophic disturbances, injuries and their sequelæ, and neoplasms.

LECTURES ON THE TREATMENT OF UTERINE FIBROIDS. By FRANKLIN H. MARTIN, M.D., Professor of Gynecology, Post-Graduate Medical School of Chicago; Surgeon to the Woman's Hospital of Chicago, etc., etc. Pp. 174. Chicago: W. T. Keener Company, 1897.

This little volume gives in a clear, practical way the present status of the treatment of fibroids of the uterus. It is the outcome of ten years of persistent work in this line by the author. The first chapter includes the anatomy, histology, varieties, etiology, degeneration, disappearance, etc.; the second, the symptoms and diagnosis; the third and fourth, medical treatment; the fifth, electricity; and the remaining chapters, the minor and major surgical methods. The teaching throughout is judicious and bears the impress of a large experience.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS. Volume IX. Philadelphia: William J. Dornan, Printer, 1897.

This handsome volume contains the full text of the many valuable papers and the discussions which came before the Association at its meeting held in Richmond in September of last year. As the readers of this JOURNAL well know, this Association is doing most excellent work, and its volumes of transactions should be found in the library of every one who wishes to keep abreast of gynecological progress. The indications are that the coming meeting to be held at Niagara Falls, August 17th to 20th, will be the most successful in the Association's history.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY,

IN CHARGE OF THE EDITOR AND DR. JULIUS ROSENBERG.

PEDIATRICS,

IN CHARGE OF DR. A. RAYMOND-SCHROEDER.

OBSTETRICS.

Rupture of the Uterus.—Pée¹ reports a case of rupture of the uterus occurring after a version and an attempt to extract the after-coming head with the cephalotribe. The pelvic measurements were normal. When seen by the author, the woman,

who lived in unfavorable surroundings, was in a condition of collapse. The head was torn off and had escaped through the rent into the abdominal cavity. In spite of the unfavorable prognosis laparotomy was performed. The uterus presented a large rent, but the peritoneal covering was dissected off, not torn through; in this peritoneal pouch the head was found. The tear, after trimming the edges, was carefully sutured, and the woman's recovery was free from fever and uninterrupted by any complication. The use of the cephalotribe is severely condemned, and Pée correctly says that this instrument should be no longer in the hands of the obstetrician, but be preserved as a curiosity in clinical museums.

Ludwig² describes nine cases of rupture of the uterus which received operative treatment in Chrobak's clinic. Tamponade and pressure from above have given good results, and should certainly be used if the conditions make operative treatment impossible. In severe cases, where there is much loss of blood, this method will hardly suffice. Suturing of the tear through the vagina is practicable only in cases where the laceration is not external and offers easy access. Laparotomy and careful closure of the rent from above should be performed whenever possible.

Etiology and Therapy of Eclampsia.—Kollmann³ found in the blood of eclamptic patients high percentages of fibrin. He traces the toxic properties of eclamptic blood serum to the excess of globulin; the symptoms of eclampsia are therefore caused by globulin-poisoning. As treatment the active measures advocated by Dührssen are advised. If delivery has not the desired effect, venesection should be performed, thus relieving the blood quickly and certainly from the deleterious toxic substances.

Axis Torsion of the Uterus, especially in Pregnancy.—Löhlein.⁴ Torsion may be produced by a shrinkage of para- or perimetritic exudates and new growths in the uterus or ovaries. If torsion occurs during pregnancy the condition may simulate ectopic gestation, as shown by one of the cases reported. The valuable diagnostic symptom is difficult urination, probably due to traction upon walls of the bladder.

Pregnancy in Uterus Didelphys.—Spitzer⁵ The interesting point in this case was, while there were double uterus and adnexa, a single vagina was present. The pregnancy ended with abortion. The puerperium was normal. Five days after delivery the non-pregnant uterus expelled a complete decidua.

Premature Detachment of Normally Implanted Placenta.—Gottschalk.¹ The accidental hemorrhage occurred four weeks before the normal termination of pregnancy; the woman was a primipara, æt. 21, who had a pregnancy nephritis. The child was in transverse position. Attempt at version while the os admitted two fingers, followed by an escape of fluid and coagulated blood and blood stained liquor amnii. The membranes appeared to be intact. The examining finger felt the placenta almost entirely detached. After extraction of the

child immediate expulsion of placenta and large masses of blood coagula. The placenta appeared compressed; child dead. Puerperium normal.

Contribution to the Development of the Placenta.—Von Herff.⁶ This paper is a continuation of the investigation (an abstract of which appeared in the April number of *THE AMERICAN JOURNAL OF OBSTETRICS*) and study of the development of the various forms and the sources of hemorrhage in placenta previa. In the former paper Herff has shown that placenta previa may originate from a development of the placenta in the immediate neighborhood of the internal os (primary placenta previa), while secondary previa development occurs in cases where the ovum is engrafted in the upper uterine zone but with an excessively large placenta. A portion of placenta which covers the internal os may originate from the development of a reflex placenta or the adherence of the decidua vera to the placental margin. The widely accepted theory that the hemorrhage during pregnancy is due to the detachment of the placenta is not credited by Herff. The main sources of hemorrhage are the utero-placental vessels and sinuses, also the intervillous spaces, and the arteries to a lesser degree. Whenever the walls of these vessels are abnormally thin, trivial causes, as defecation, coughing, vomiting, etc., may suffice to cause a spontaneous rupture and hemorrhage.

Amblyopia and Amaurosis during Pregnancy, Labor, and Puerperium.—Siley.⁷ Amaurosis occurs rapidly or suddenly and attacks both eyes simultaneously, lasting for hours, days, or weeks. As a rule the duration is a few hours, to again repeat itself after new uremic attacks. Although often in conjunction with eclampsia, amaurosis is not a prodromic symptom of this disease, occurring sometimes independently of eclampsia or after the eclamptic attacks have entirely ceased. Amaurosis is usually preceded by severe cerebral disturbances, such as headache, vomiting, etc., while diminished vision and the presence of spots or sparks are the premonitory ocular symptoms. The mind is often perfectly clear, the patients realizing their condition and noticing the approaching blindness; in other cases the sensorium is not clear, which makes a correct diagnosis quite difficult. The bulbi are unsteady and often directed upward. The pupils are normal or dilated and react to light, even in complete amaurosis. The prognosis is good even in the gravest cases, although death occurs before improvement has commenced; if, however, a complicating retinitis is present the prognosis is very unfavorable.

Umbilical Hernia and Almost Complete Absence of the Cord.—Dietel,¹ at the Leipzig Obstetrical Society, demonstrated the specimen of a child born in the eighth month of utero-gestation. The cord was absent, the placenta being nearly continuous with the child's abdomen. Next to the placenta a tumor was situated, containing all the intestines, stomach, spleen, and liver. The opening between the hernial sac

and the abdomen barely admits one finger; the walls of the sac consist of amnion and peritoneum.

Hemorrhages into the Spinal Canal of Infants, and their Causes.—Schaeffer^{*} made post-mortem examinations in a series of cases, in 10 per cent of which hemorrhage into the spinal canal was found; cerebral extravasations are twice as frequent. In 17 cases of spinal hemorrhage 41 per cent of instrumental deliveries are noted. Asphyxia and immaturity of the child predispose to spinal hemorrhage, and mechanical interference, such as instrumental deliveries or efforts at resuscitation, may evoke it. Prognosis is bad in the region of the medulla, otherwise depending upon the size of the extravasation, degree of spinal compression, and the cause. The prophylaxis consists in the avoidance of infection and asphyxia, proper care of the cord, the substitution of Martin-Winckel's method of extracting the after-coming head for Mauriceau's method.

Ectopic Gestation.—E. A. Ayers²² describes an interesting case of tubo-abdominal pregnancy in which abortion had been attempted at the fifth week of gestation. At the seventh month he opened the abdomen and found the placenta just under the omentum, its fetal surface immediately beneath the abdominal wall. It was adherent to the uterus, colon, and peritoneum, but received its vascular supply by several large vessels coming from the left tube and from a thick band of adventitious tissue arising probably from that tube. Ayers believes it to have been entirely fetal in structure. The child lay outside of the amnion, surrounded by intestines, and was successfully delivered, but died three weeks later from inanition. The mother succumbed a day after the operation from exhaustion.

H. J. Boldt²² presents the results of an experience of about one hundred cases of ectopic gestation. Though formerly holding that a tubal inflammation was present in every instance, he now acknowledges that in some, at least, the etiological factor is that the spermatozoa pass directly into the tube, meet the ova, and the latter become embedded though the tube is normal. In opposition to Tait's opinion the writer reports a case of tubal abortion. The patient was 33 years old, married eleven years; four children, all normal deliveries. Two and a half years had elapsed since the last confinement. Since the 3d of the month she had suffered with pain in the right hypogastrium, which radiated over the entire abdomen and down the right thigh. The pain was nearly constant and cramp-like. The uterus was somewhat diminished in consistence and slightly enlarged. On the right side it was considerably thickened and painful on bimanual examination. The enlargement was distinctly felt to pass a trifle outside of the uterine boundary into the tube. On February 22d a sound was passed into the uterus, which was found to be empty. On that day a faradic current was used, as strong as the patient could comfortably bear it, the positive pole being placed over the

tubo-uterine tumor with the intention of destroying the vitality of the ovum. Four such treatments were employed. At the time of the intended fifth treatment all the pain had disappeared, and with it the enlargement of the right side of the uterus and tube. The patient was delivered of a living child at term. The writer has operated upon 62 cases of ectopic pregnancy with 4 deaths. He does not believe it possible to lay down rules for the differentiation of tubal rupture and tubal abortion. An ectopic gestation should be considered in the same light as a malignant neoplasm. Electricity is more dangerous than surgical interference, as the death of the fetus does not prevent hemorrhage or decomposition; but either this form of treatment or the injection of narcotics into the sac, which is also liable to be followed by suppuration, is safer than operation by one who is inexperienced. Boldt believes it better to operate at the patient's home, in spite of bad surroundings, rather than risk another hemorrhage during transportation. He does not consider it necessary to wash out all blood from the abdomen, if it is advisable to shorten the operation. In unruptured cases, or if rupture has occurred and the uterus is freely movable, he prefers the vaginal operation. In advanced cases he enucleates the entire sac, if possible, unless suppuration has occurred, in which event he stitches it to the abdominal wound, irrigates, and packs. For pelvic hematocele, if small and with no alarming symptoms, he orders absolute rest and an ice bag over the abdomen. If operation is required he punctures the sac with a Palmer uterine dilator with sharpened ends, spreads the blades, and introduces between them a Bischoff's rectal dilator, by means of which he stretches the opening considerably; irrigates and packs the cavity with gauze, which is changed every two or three days, and employs cold over the abdomen.

G. W. Libby²³ reports a case of ruptured ectopic pregnancy operated upon by vaginal puncture and subsequent laparotomy, followed by death from exhaustion.

Cancer of the Cervix during Pregnancy.—N. Pobedinsky²⁴ reports a case of cancer of the cervix in which he performed Porro's operation and then removed the cervix through the vagina in order not to infect the abdominal cavity. The patient recovered; the child died within a day. The author records also one operated upon by L. Warneck, in which the Porro operation was done with extraperitoneal fixation of the stump. The child was saved; the woman died in two days. Theilhaber's statistics place the mortality of Porro's operation at 50 per cent (6 deaths in 12 cases), and 38.4 per cent (5 deaths in 13 cases) after conservative Cesarean section. Pobedinsky, however, does not believe that such limited statistics prove anything, and he considers the Porro operation with extraperitoneal fixation of the pedicle as far preferable, as it can be completed more rapidly than a Cesarean section, a point greatly in its favor in the case of a weakened patient. In every inoperable case of cancer the child should be saved. If it is still

possible to remove the whole neoplasm it is better to perform a complete hysterectomy immediately after the Cesarean section than to postpone this procedure until the puerperal period. At the beginning of a slight invasion of the cervix labor often occurs spontaneously, or can be provoked by dilatation and incision of the cervix, or by version, forceps, or perforation, according to the individual case. If delivery occurs by the natural route the uterus should be removed through the vagina during the puerperium.

Hysteria, Epilepsy, and Chorea in Pregnancy.—In considering the effect of these affections upon pregnancy and labor Tarnier²⁵ calls attention to the fact that, whereas hysteria and epilepsy rarely influence the course of pregnancy, the prognosis should be guarded in cases of chorea, as the mortality under these circumstances is about thirty per cent.

Chloroform in Labor.—J. N. Upshur²⁶ believes that chloroform should be used in labor only when imperatively demanded, as he considers that it makes subinvolution almost inevitable, increases the danger of hemorrhage and of septic infection, and increases the number of stillbirths by interfering with oxidation of the blood.

Painless Labor.—Charpentier²⁷ relates the history of five painless labors of one patient. Even in the first pregnancy dilatation of the cervix was almost complete without the knowledge of the patient, and rupture of the membranes gave the first warning.

Dystocia from Relative Shortness of the Funis.—J. A. Lycett²⁸ reports a case of dystocia in which the cord, about nineteen inches in length, was passed over the neck. Delivery was accomplished after division of the cord between clamps.

Rupture of Recto-vaginal Partition.—J. A. Doléris and E. Lenoble²⁹ report a rupture of the recto-vaginal partition above the sphincter ani, due to the pressure of the fetal head upon tissues of feeble resistance in a primipara.

Pleuritic Effusion at Birth.—Tarnier³⁰ records the birth of a child which died in two hours, respiration having been established only after severe stimulation. At the autopsy both pleural cavities were found filled with a pleuritic effusion. Tarnier calls attention to the fact that, if the presence of this fluid had been suspected and detected by percussion, the child's life might have been saved by aspiration of the thoracic cavity.

Post-partum Intrauterine Injections.—Oui³¹ says that if strict antiseptic precautions and great gentleness are employed, if all air is driven out of the tube, and if the pressure of the liquid is diminished at the moment of uterine contraction, intrauterine injections may be used without fear for hemorrhages due to uterine inertia, in cases where there is fear of producing puerperal infection, and in cases where this already exists. Thorough irrigation begun quickly is most effective for this condition, and should be employed with every woman recently confined whose temperature equals or exceeds 38° C., if a

rapid general examination does not disclose another cause for the rise of temperature.

Injections of Salt Solution.—A. Olivier³² urges the necessity of the obstetrician being supplied at all times with apparatus for injecting salt solution in the event of the occurrence of severe hemorrhages during pregnancy or labor, and describes the instruments which he employs. He advocates the use of a one per cent saline solution.

Puerperal Sepsis.—Lovell Drage²⁸ says that it is impossible to estimate the amount of harm which is done by the imperfect methods adopted in the artificial feeding of children of the richer members of the community. The resisting power of this class is thus lessened at the commencement of life and not increased later, therefore it is not surprising that at the time of labor their power of resisting sepsis is less than that of some of the poorer classes.

C. H. Harris³³ advocates the use of an irrigating curette with loop of soft wire covered with rubber, in cases of retained decidua or with decomposing blood clots after labor, a constant stream of hot water passing through the instrument. Application of carbolic acid and tincture of iodine follows.

Denslow Lewis³⁴ says that bichloride should not be used in any post-partum douche, on account of the danger of poisoning. If douches are required they should be given once or twice daily by the physician, and should be of boric acid, creolin, or lysol, followed by an application of peroxide of hydrogen and dusting with an antiseptic powder.

W. J. Findley³⁵ summarizes the necessary precautions for the prevention of sepsis as, pressure on the fundus from the time the head passes the cervix until the third stage is completed and the uterus firm, examination of the placenta and aseptic removal of any retained fragments, and rest in bed for at least three weeks with a well-adjusted abdominal binder and practice of the knee-chest position after the tenth day.

C. E. Douglas³⁶ records a case of puerperal septicemia treated with antistreptococcic serum, with negative result. The staphylococcus pyogenes aureus was the only pathogenic germ found in the discharge.

Sloughing Myoma of the Puerperal Uterus.—In reporting a case in which two sloughing fibroids were spontaneously expelled after a criminal abortion and the patient died subsequently of general suppurative peritonitis, P. Findley³⁷ says that in the majority of cases uterine myoma is the cause and not the result of sterility. Uterine myomata complicating pregnancy are especially liable to infection. The gangrenous process begins in the periphery of the tumor and invades the interior of the growth, and may penetrate the uterine wall. Myoma uteri of the gravid uterus usually grows rapidly. Submucous, less frequently interstitial, myoma may so distort the uterine canal as to render impassable the delivery of the placenta; such growths should be enucleated when possible, the retained placenta extracted, and the uterine cavity thoroughly

sterilized and packed with sterilized gauze. If the growths cannot be enucleated and symptoms of sepsis do not yield to antiseptic measures no time should be lost in performing hysterectomy. In every case of abortion or labor complicated by myoma the attending physician should be on his guard for the first indication of sepsis, and in event of septic infection operative interference is imperative.

Paraplegia in the Puerperium.—Two such cases are put on record by J. R. Leeson.⁵⁶ Both patients had neurotic tendencies; both labors were precipitate and had adherent placentaë which had to be artificially removed; in neither case was the bladder or rectum affected. The cases lasted about the same time, the severer case about a week, and both recovered slowly and entirely. He believes that the paralysis in both cases was due to over-stimulation and subsequent temporary exhaustion, the shock of the precipitate labor being much increased by the prolonged and severe intrauterine irritation necessarily attendant on the removal of the adherent placentaë.

Sudden Death in the Puerperium.—M. Goltman⁵⁸ states that this is most commonly due to pulmonary embolism, predisposed to by phlebitis, varicose veins, prolonged labor, hemorrhage, anemia, sepsis, cancer, and syphilis. In the presence of peripheral thrombosis absolute rest is necessary, especially during the second and third weeks of the puerperium when the clots disintegrate. The extreme changes in the blood usually ascribed to pregnancy and the puerperium are erroneous. Sudden death from air embolism at this period is doubtful, but shock is both a direct and indirect cause of death. Goltman records two cases of death from pulmonary embolism after labor. In one, labor was obstructed by a hematoma of the vulva until this was incised. An embolic pneumonia followed and sudden death occurred on the fifteenth day after slight exertion. The diagnosis was pulmonary embolism with secondary thrombosis of the right heart, but autopsy was refused. In the other case emboli were found in the pulmonary arteries after death on the sixteenth day. In both cases the former varicosities of the femoral and internal saphenous veins had disappeared at the time of death.

GYNECOLOGY AND ABDOMINAL SURGERY.

Intermittent Cysts of the Ovary and Kidney.—There are certain abdominal cysts characterized by repeated periods of enlargement followed by sudden disappearances, the disappearance being usually accompanied by the passage of large amounts of urine. In these cases the diagnosis between renal and ovarian cysts is often confused. Thomas Wilson⁹ reports two cases, reviews the literature, and says regarding diagnosis and treatment:

In the early stages of renal and ovarian cysts the diagnosis is, as a general rule, sufficiently easy. The renal swelling fills one flank and extends forward in the subperitoneal connective

tissue, carrying the peritoneum forward; this accounts for the fixity and immobility of the tumor, and for the dulness to percussion in the loin. At the same time the ascending or descending colon, according as the tumor is right or left sided, is pushed forward and is found coursing over the front of the tumor. All the borders of the swelling are rounded. The upper border makes an acute angle with the margin of the thorax; the lower border can be well defined by the hand pressed in above the pubes. Contrast this with the moderate-sized ovarian cyst which is median in position; rises out of the pelvis, so that the hand cannot be passed in between its lower end and the pubes; is fairly freely movable, and has no intestine in front of it, while both flanks contain intestine, as is proved by resonant percussion note. In these moderate-sized cysts difficulty may arise on the one hand when an ovarian cyst has become fixed high up on one side of the peritoneal cavity, as may sometimes happen in the course of a pregnancy; and on the other when cystic dilatation affects a floating or congenitally misplaced kidney, a change which is not very infrequent. But in cysts which fill the whole abdominal cavity the diagnosis may become difficult even to impossibility. Many of the mistaken diagnoses have, however, been due to want of alertness.

In these very large cysts examination will disclose in either case an abdomen with a prominent anterior swelling, more or less symmetrical, obliterating the umbilicus; the consistence is more or less firmly elastic or fluctuating; considerable variation in consistence and resistance over different portions of the tumor is suggestive rather of ovarian disease; either in hydronephrosis or in an ovarian cyst which is unilocular or has one large, leading cyst anteriorly, free fluctuation wave may be obtained from any one point to any other of the surface. The tumor is not movable in either case. Percussion may afford important evidence. A kidney cyst pushes the intestine over toward the opposite side, so that the side on which the cyst began is dull all round the flank, and the posterior lumbar region is dull up to the spine; the opposite flank is resonant. An ovarian cyst carries the intestines upward and backward, and should be surrounded by an area of resonance which embraces both flanks. But if the intestines are empty of air and collapsed there may be, and often is, dulness in one or even both flanks.

The most important point in the examination of the abdomen is to make out whether or not intestine runs over the front of the tumor; if it does, the case is not one of ovarian cyst, unless, as might be supposed to happen, a loop or two of intestine has early become adherent to the front of the cyst. If the tumor is a renal cyst the intestine over the front of the tumor is a portion of the large gut. This when empty and collapsed may be recognized by palpation as a cord coursing over the tumor, and capable of being displaced to and fro over the surface to a certain limited extent; sometimes a gurgling or the sensation of flatus passing may be observed. If the intestine contain gas

percussion will define it as a band of resonance over the elsewhere dull area of the cyst.

Vaginal examination may show the lower part of the cyst to be resting on the pelvic inlet, whether we have to do with a renal or ovarian affection. In the case of a renal cyst both ovaries will be felt *in situ*; both ovaries may equally be felt in the case of a parovarian cyst. The position of the uterus is of more importance; in hydronephrosis the position will be unaltered or the womb simply pushed somewhat downward. Where there is an ovarian cyst the uterus is generally found altered in position; most frequently the fundus is turned backward; often it is pulled upward to some extent at the same time. These alterations in position are to be made out by vaginal and rectal digital examination and by the use of the sound. Where the fundus is turned forward, as it is in thirty to forty per cent of ovarian tumors, the position has no importance as regards diagnosis between ovarian and other cysts. The most important result of vaginal examination is the recognition of a pedicle coming from one cornu or other of the uterus in the case of an ovarian cyst. The search for this may be facilitated where necessary by causing an assistant to draw down the uterus by means of a volsella fixed in the cervix, while digital examination through the rectum is carried out, an anesthetic being administered if necessary. The examination of the fluid or urine is usually inconclusive. Urine for examination must always be drawn by catheter, so as to be sure that it really comes from the bladder and is not contaminated by vaginal or other discharges. If the diagnosis cannot be made clearly, operation should be recommended, and commenced with an exploratory incision four inches long, placed as low as can safely be done in the median line. Through this the hand can be passed and the relation of the cyst to the uterus and ovaries made out; if the cyst be very tense an aspirator needle may be employed to draw off some of the fluid in order to facilitate examination; the holes made can be closed afterward, if necessary. Through the exploratory incision the relation of large intestine to the front of the cyst can also be made out, if required. If the case turn out to be ovarian, ovariectomy is now proceeded with in the usual way. In hydronephrosis the exploratory opening is closed and an incision into the cyst made in the lumbar region. If the tumor is not ovarian and still not certainly renal, an incision may be made into it and the renal pelvis felt for. This is described by Simon as marked in large cysts by shallow, circular or crescentic depressions, lined by mucous membrane, and limited by prominent edges; the depressions are fairly rounded and have a diameter of one and a half to two centimetres and over, their inlets are narrower than their bases. They are placed on the posterior surface of the cyst at distances apart of three to four centimetres. If the pelvis of the kidney be recognized a counter-opening should be made in the loin and a large drainage tube introduced. The anterior opening in the cyst wall should then be closed with

two superposed layers of catgut suture, the inner continuous and embracing the whole thickness of the cyst wall; the outer interrupted layer placed like Lembert's intestinal suture, embracing the peritoneum only. The anterior abdominal wall should then be closed.

Senile Endometritis begins after the menopause. No connection has been shown between it and any condition existing during menstrual life. Nothing is known as to its causation. There is no tendency to spontaneous cure. Ernest Herman,¹⁰ in discussing it, says: The symptoms are copious purulent discharge, often mixed with blood; pain, which may be so bad as to keep the patient awake at night; and sometimes wasting. The discharge is the invariable symptom; pain and wasting may be slight or absent. The disease is hard to distinguish from cancer in an early stage. It sometimes runs the same clinical course as cancer. If milder treatment does not quickly produce decided benefit it should not be continued, but the uterus should be removed. When consulted by an old woman about a copious purulent vaginal discharge the vagina should be first treated. Swab the vagina out with strong carbolic acid, and prescribe frequent astringent injections, such as zinc chloride five to ten grains to the pint. Begin with the weaker and increase the strength if necessary. Repeat the application of strong carbolic acid two or three times, if necessary, with weekly intervals. Take care that none goes on the vulva. If discharge comes from the uterus there may be so little of it as not to trouble the patient when the vaginal discharge has been stopped. If treatment of the vagina does not abolish the discharge the cervix should be dilated with laminaria tents and the interior of the uterus explored. If growths are felt they should be scraped away and examined with the microscope. If there are no outgrowths the endometrium should be scraped with a blunt curette, any bits detached reserved for the microscope, and then the interior of the uterus swabbed with strong carbolic acid or lin. iodi. This will almost always remove the symptoms for a time. If, after a short interval, they return and become as bad as before, the best treatment is to remove the uterus.

Thyroid Treatment in Gynecology.—M. R. Latis¹¹ reports three cases in which he successfully carried out the theory of Hertoghe, who asserts that many uterine affections which are now treated surgically can be cured by the administration of the thyroid gland. Menorrhagia and hemorrhages due to endometritis, ovaritis, and even cancer, are greatly benefited. This he considers to be owing to the fact that the thyroid juice possesses an inhibitory or vaso-constrictor power upon the pelvic genital organs, which is proved by the gradual diminution and final cessation of the menstrual flow under the prolonged use of the remedy.

Basedow's Disease.—Cholmogoroff⁷ reports a case which sustains the view of Kleinwächter that Basedow's disease is in intimate relations with the genital organs, and is sometimes the

cause or the result of their abnormal conditions. In Cholmogoroff's cases the disease became aggravated with each successive pregnancy, after which an improvement could be noted.

Prediagnostic Treatment of Grave Abdominal Disease.

—Greig Smith,¹² in discussing this most important subject, emphasizes the dangers of morphia or any fluid by mouth, and says: We will suppose the patient in ordinary health up to the moment of the attack; the physician finds him in bed, suffering great pain, and with the ordinary symptoms of serious abdominal disease. It may be impossible to say whether it is simply colic—intestinal, renal, or biliary—or some grave condition, such as obstruction or perforation of a viscus, or even extravasation of blood. The shock may be caused by pain and fright; it is very like true collapse, such as might be produced by peritoneal diffusion of the contents of a perforated stomach, or of a periappendicular abscess, or by the rupture of a tubal pregnancy.

The first thing to be done under these circumstances is to administer an enema containing an ounce of brandy or whiskey. The brandy is best given in milk, which the rectum tolerates, and about three ounces of milk is enough. Before giving it the rectum is explored with the forefinger, and the evidence, positive or negative, thus afforded is treasured up toward the diagnosis. As the finger is withdrawn the nozzle of the syringe is inserted, almost by the same act as the examination is made, and the enema is administered.

Then the patient is swathed in hot blankets, one being rolled round each leg, and one, pulled under his back, is rolled round his chest. Hot-water bottles are packed around limbs and body. The abdomen is left to be covered separately by some light woollen wrap which can be easily removed so as to permit of examination of the surface. The attendant now sits down by the bedside of the patient to watch him and to complete the diagnosis; and he ought scarcely to leave his side till the diagnosis is complete.

Meanwhile the alcohol and the warmth are doing their beneficent work. The pulse improves, color comes into the patient's cheeks and lips, excitability and nervousness are diminished, pain is probably lessened, and soon the surface is covered with warm perspiration. No single therapeutic measure with which I am acquainted does so much good in the early stages of grave abdominal disease as rectal injection of alcohol. It is indeed a fortunate thing for the patient that, while the whole of the rest of the intestinal tract is paralyzed and useless, the rectum still retains its power of passively absorbing liquids.

The surgeon, sitting by the patient, intently watches the evolution of signs, and uses such aids in palpation, percussion, and especially in auscultation, as he thinks proper. Every individual sign is noted and kept in mind as it is evolved; and it will be surprising if, at the end of half an hour, their aggregation do not permit of a diagnosis being made sufficiently accurate for exact treatment.

The general behavior of the patient is important. In spasmodic colic—intestinal, renal, or biliary—the patient makes a great fuss; he is in acute pain, and he lets every one know it, calling out and rolling and twisting about in all directions. Very differently behaves the patient with visceral perforation: he makes little fuss and no complaint; he keeps his body rigidly still; his arms only does he move, bending and stretching and raising them, while he rolls his head wearily from side to side. Between the two are the intestinal strangulations with their special signs. The condition of the parietes as to tension and distension, spasm or relaxation, is carefully noted, and the movements or quiescence of the intestines are observed. If the intestinal muscle is acting violently there is no perforation, for intestinal paralysis is one of the first effects of diffusion of fluids in the peritoneum. All over the abdomen there is silence to auscultation, save at the seat of perforation, when there are rare and mysterious blowing or rushing sounds. In the parietes we must distinguish between tension and distension, between hardness from reflex or voluntary muscular spasm and hardness from physical stretching, giving each variety its true meaning. And intermittently we percuss, especially over the region of the liver. If there is not much distension, abrogation of the liver dulness is almost pathognomonic of perforation and escape of gas from a hollow viscus or from rupture of an abscess which contains gas—such as an appendicular abscess. If there is much distension, so that bowels may get between liver surface and parietes, this sign is of less value. But the abdomen takes long to distend; the parietes get very tense before they stretch in acute disease.

The signs revealed by auscultation may be of great value. The disc of the phonendoscope is laid on the parietes and moved about from place to place, while sounds are patiently listened for. It must not be forgotten that intestinal sounds are not, like cardiac or pulmonary sounds, repeated rhythmically so many times a minute. On the contrary, they may occur only at long intervals, and recur with no measurable regularity. To attempt to describe these sounds would be to go beyond the scope of this paper, and I doubt if the description would be accurate. But I think it is always possible to be certain of the natural and diffuse sounds in colic: of the exaggerated local and rushing sounds in obstruction; and of the curious general silence, with rare and remote noises, in perforation. They must be heard again and again and listened to long before one can be certain of their meaning.

We shall now be in a position to say whether it is colic or dangerous disease. The final diagnosis may be made with the help of chloroform. The patient is given a little chloroform to inhale. If it is simple colic he greedily inhales it, delighted with the relief it gives. In a few minutes the marked improvement of the patient's condition will almost prove the diagnosis. In perforation or strangulation the patient is not greedy to inhale the chloroform; it may increase the nausea, and it does

not cause marked improvement in the symptoms. When we have decided that the disease is no more than colic we may at once give a full dose of morphia and begin the proper treatment, of which no more need here be said.

By the time that half an hour has passed the diagnosis will have gone so far that the decision for or against operative interference will have been made.

Microscopical Anatomy of the Ovaries in Osteomalacia.

—Heyse⁸ found the blood vessels of the stroma more numerous and their walls the seat of a hyaline degeneration. The Graafian follicles were diminished in number; he found about 17,000 in one case and only 5,000 in the second, while according to Henle 36,000 is the normal number. Whether the changes in the blood vessels and follicles are primary or secondary could not be decided.

Atrophy of the Uterus following Castration.—Gottschalk.⁹

While there remain particles of active ovarian tissues the uterus will not undergo atrophic changes, even if the ovarian vessels are ligated. But as soon as the ovulating process ceases, whether from natural or artificial causes, then the walls of the vessels lose their elasticity, the periodical increased blood supply no longer takes place, and the insufficient distension of the blood vessels produces the atrophic changes.

Clinical Experiences with Murphy's Button.—Marwedel.¹³

During the last twelvemonth there were at Czerny's clinic 55 operations in which Murphy's button was used. Anastomosis of stomach and gut, 34 cases; gall bladder and intestines, 3 cases; 29 cases of recovery out of 35 cases of gastro-enterostomy; no bad effects in any case from the button, which was expelled, earliest on the eighth day, latest after forty-five days, mostly on twelfth to fourteenth day.

Dietel.¹ A case of volvulus is related occurring in a woman after salpingo-oöphorectomy and ventrofixation, the immediate cause of which was an error of diet. The operation consisted in resecting a piece of the ileum nearly one and a half yards long, and a union of the resected gut by means of Murphy's button. The button was passed thirty-eight days after the operation.

Rupture of the Wound after Laparatomy.—Switalski.⁷

The abdominal incision was closed by three rows of catgut sutures. The patient was tortured by a continuous cough which narcotics failed to relieve. During the first week nothing abnormal was noted, but on the eighth day the dressing was found to be blood-stained, and upon the removal of the dressing masses of intestines were seen outside the abdomen, partly adherent to the edges of the wound. After their reposition closure of the wound with silk sutures; complete recovery. The interesting point in this case is the excellent condition of patient in spite of the partial eventration, both pulse and temperature being perfectly normal.

Residual Gonorrhea.—Sänger,¹⁴ of Leipzig, in an able paper states that gonorrheal infection, after its progress and infec-

tiousness have long been extinguished, leaves in the tissues and parts of organs which have been attacked by it a whole series of very characteristic, even specific, signs, which he denominates the residual signs of gonorrheal infection. Residual gonorrhea may affect:

1. The vulva. *a.* As vulvitis maculosa (persistens). This is an affection of the mucous membrane of the vestibule, in the form of spots around the openings of the ducts of the glands of Bartholin, formerly described as resembling flea bites; moreover, in the form of dark red spots, usually small, sharply circumscribed, around the paraurethral ducts, on the summits of the excrescences and caruncles of the vulva, and scattered on the remaining mucous membrane. *b.* As adenitis glandulæ Bartholini scleroticans. The glands of Bartholin can be felt on one or both sides as hard nodules, not tender, and of the size of peas to that of hazelnuts. (To distinguish them the region of the gland is taken between the thumb and index finger and examined.) *c.* As oval, or round, shallow, clearly circumscribed ulcers, exterior and inferior to the mouth of the duct or the gland of Bartholin and originating in previous rupture of abscess of this gland, which have occurred with necrosis of the mucous membrane covering it. (Rare.) *d.* As the great majority of the cysts of the gland of Bartholin.

2. The urethra. *a.* As urethritis maculosa externa (persistens), the formerly described, sharply limited, dark-red spots or rings of the external aperture of the urethra. *b.* As various forms of chronic urethritis, analogous to those described by Oberländer for the male urethra, which furnish the gonorrheal threads. *c.* As strictures. The commonest cause and the condition most frequently found in cases of vesical tenesmus, and of urethral tenesmus where the urine is normal. Often combined with chronic urethritis. *d.* As chronic periurethritis in the form of a rigid thickening of the whole urethra, even to the thickness of the ring finger.

3. The vagina. *a.* As colpitis maculosa (persistens). The mucous membrane of the vagina and of the mucous covering of the vaginal portion of the uterus, especially in those parts which have few folds and papillæ, shows dark-red spots, partly well defined and partly indistinct, similar to the maculæ in the vulva. When these occur in the region of folds and papillæ they are situated on the crests and points. *b.* As colpitis granularis (persistens), already described by Neumann, of Vienna, as "vaginitis papulosa," and also described by Carl Ruge and connected with gonorrhea. These occur in the same places and with the same distribution as the maculæ vaginales. The granules or nodules are smaller and harder than those of acute granular colpitis of pregnant women. A certain diagnosis can only be made by use of the speculum, in order to avoid confusion with papillæ. Their apices then often show a dark-red color. Very frequently colpitis maculosa and granularis occur together. An excellent and sure reagent to bring out both forms clearly has been found in fifty per cent solution

of zinc chloride. A pledget of cotton wet with this is introduced into the cylindrical speculum, and then it is withdrawn as far as the vaginal entrance and again pushed in several times until the chloride of zinc has been brought into contact everywhere with the vaginal mucous membrane. The macules and granules then are seen as snow-white spots, the latter in various sizes, like the stars in the sky, in contrast with the pale-red vaginal mucous membrane, which has remained unaltered. The fifty per cent solution of zinc chloride serves also at the same time as a means of treatment, for after one or several applications the macules and granules disappear. Nevertheless there are some obstinate cases where this does not happen. Certain cases of colpitis atrophicans (obliterans) and of colpitis senilis hemorrhagica certainly depend on gonorrhea originally. Likewise many cases of pruritus vulvæ. Condylomata acuminata belong to acute or chronic gonorrhea.

4. The uterus. *a.* As endometritis and metro-endometritis chronica post-gonorrhoeica (residualis). In cases in which considerable time has elapsed since the gonorrheal infection and repeated examinations of the uterine secretions have failed in showing gonococci, even when the discharge is quite purulent, and those in which it has been artificially increased, it is permissible to assume that we have to deal with a residual form of endometritis and metro-endometritis—that is to say, that the inflammatory processes originally excited by the gonococci now continue without the latter, causing hemorrhages and morbid secretions. *b.* As perimetritis chronica post-gonorrhoeica. This affection in a pure form, not as a part of a pelio-peritonitis diffusa, is very rare except in connection with gonorrheal infection. When it is observed it is almost always derived from an acute gonorrheal metro-endometritis, and in its late stages it is to be regarded as a residual form.

5. The adnexa uteri, pelvic peritoneum: salpingitis, perisalpingitis, oöphoritis, perioöphoritis, pelio-peritonitis chronica residualis. The frequency and the importance of gonorrheal disease of the appendages needs to-day no further emphasis.

6. Pelvic cellular tissue: parametrium. In regard to the cicatricial remains of puerperal parametritis, which are found with extraordinary frequency, it cannot be decided whether they are of gonorrheal origin until the presence of gonococci in the acute stage of the exudate can be demonstrated.

7. Rectum. Strictures of the rectum, which are still involved in much obscurity as to their etiology, are very probably to be regarded as largely gonorrheal residua, according to the evidence lately furnished by Baer of the comparatively great frequency of rectal gonorrhea.

Hematosalpinx in Double Genitals.—Robert Meyer.⁶ In a former paper the author confirmed the investigations of Veit that an occlusion of the abdominal orifice of the Fallopian tube and the subsequent hematosalpinx formation are traceable to a preceding infectious process. In the present paper Meyer examined 112 cases, and concludes that in double genitals the

causes which lead to tubal occlusion and hematosalpinx are identical and that the contents of such a hematosalpinx are always of an infectious character.

Shall We Remove the Uterus when Operating for Septic Pelvic Disease?—Henrotin¹⁵ believes as follows:

1. In operating for pelvic septic disease, either by the abdomen or the vagina, the condition of the ovaries should be the first object of special consideration, and no part of such an organ, when apparently healthy, should be removed.
2. When the ovaries, an ovary, or a part of an ovary are left, the uterus should never be removed unless it is the seat of otherwise incurable disease.
3. The removal of diseased Fallopian tubes, even in their entirety, is no warrant for the removal of healthy ovaries or a healthy uterus.
4. Even if the tubes and ovaries are entirely removed the uterus should be spared, if its removal will entail appreciable increase in the danger of the operation to the patient.
5. In very young patients, or such as have what is known as infantile uteri, the uterus need not be removed.
6. In the vast majority of cases when, in operating for pelvic disease, it becomes necessary to remove the ovaries, it is most advisable to also remove the uterus, because it serves no further purpose in the economy, and because it remains a serious element for future harmfulness.
7. When, in operating by the abdominal method, the cervix is found apparently healthy, it is advisable to make a supravaginal amputation and to leave the cervix, putting in stay stitches, as recommended by Baldy, to prevent displacement of pelvic fascia. With greater experience, to be gained principally by examination of ablated uteri, we may learn to distinguish inoffensive varieties, and, if so, will leave all such undisturbed.

Franklin H. Martin¹⁶ says: "Never remove the healthy uterus for the cure of a pathological condition foreign to it; remove it only for inherent disease where such disease is incurable by minor means and seriously menaces the life of the patient. Therefore I should most positively oppose the removal of the uterus in all cases simply because the appendages of both sides are the seat of apparently incurable disease."

Weller van Hook¹⁶ admits that the value of the uterus after the removal of the ovaries, which are the essential organs of generation in the female, does not seem very great. But it is difficult to see why a normal womb should be excised after oöphorectomy, which we know is followed by atrophy of the uterus. The statement that the uterus under such circumstances "is a dirty hole" is not argumentative. For his own part he feels justified in removing the uterus (1) when it is the seat of disease otherwise incurable; (2) when at the time of performing salpingo-oöphorectomy it is in such a state of chronic inflammation as to make it appear probable that the strongly atrophying influence of oöphorectomy will not do away with the painful condition; (3) when the abdominal route to diseased tubes and ovaries is contraindicated, and when hyste-

rectomy would seem to offer better facilities for their removal and for drainage.

Alexander Ferguson¹⁵ speaks against its removal, claiming that the disadvantages of primary hysterectomy, in addition to removal of pus tubes and ovaries, are: 1. It takes longer to do the operation, and the mortality is higher. 2. The primary hemorrhage is greater and the secondary more liable to ensue. 3. Greater shock. 4. More liable to injure ureters, bladder, and rectum. 5. The patient is less of a woman, anatomically and socially. 6. The vagina is shortened. 7. Hernia of the vagina is liable to follow. 8. A healthy uterus is often removed on account of the difficulty of diagnosing beforehand the amount of disturbance caused by the inflamed tubes, ovaries, and uterus respectively.

Drainage in Abdominal Surgery.—Baldy¹⁶ says: Drainage, like the clamp in ovarian cysts and the serre-neud in hysterectomy for fibroid tumors, has been, in the evolution of abdominal surgery, a necessary evil—an evil which, like the others, has in great part ceased to exist. We cannot entirely dispense with drainage, but he who drains over five or ten per cent of his cases takes unnecessary trouble and risk, and in future will probably see this percentage lowered.

Operation in Cancer of the Cervix Uteri.—Janvrin¹⁶ concludes a paper on this subject by saying: Vaginal hysterectomy should be confined to cases in which the disease is limited to the cervix, or the cervix and mucous membrane only of upper part of vagina, or to those in which the disease, having involved these points, has also begun to develop upon the mucous lining of the uterus itself. To this may be added cases of adenoma and carcinoma uteri in their early stages. In all cases in which there is suspicion of extension of the disease beyond the limits mentioned, whether into the parametrium, the folds of the broad ligaments, the ovaries, or the cul-de-sac, the combined abdomino-vaginal operation is by all means the most appropriate, if we resort to any radical operation.

Vaginal Hysterectomy.—L. M. Bossi¹¹ describes the technique of the operation as performed by himself. The essential points are the following: 1. He uses no speculum, relying entirely upon the skill of the exploratory finger, which is more free in its motions from not being interfered with and restricted by the valves, and can better appreciate the thickness and distension of the tissues, the amount to be included in each ligature, the resistance offered, and the relations to neighboring viscera, especially when there are adhesions. He considers touch more trustworthy than sight in this case. 2. As a rule he prefers to ligate before incising, instead of applying the forceps, incising, and then ligating, as it leaves the field of operation more free and gives greater certainty of the security and extent of the ligature. 3. In simple cases he does not leave any forceps *in situ*, as they are apt to cause various disturbances, such as consecutive hemorrhages, lesions of the intestines, dangers of infection of the pedicle, excessive opening and dis-

tension of the abdominal cavity. 4. In complicated cases he uses both ligature and forcipressure, always beginning with the former. Seven is the greatest number of forceps which he has ever been obliged to leave in place, even in complicated cases, and this in spite of the fact that his list of operations includes multiple and voluminous fibromata, purulent bilateral salpingitis, and extensive adhesions to the rectum and bladder. 5. As a rule he leaves a large opening, reducing suture of the peritoneum and vaginal columns to one or two stitches in the median portion. 6. He practises morcellement, but to a certain extent only. Having the vagina unobstructed by specula, he is able to extract much larger fragments than would otherwise be possible. In an operation performed last October he extracted a fragment weighing 22 ounces, consisting of uterus, ovaries, 9 submucous, intramural, subserous, and intraligamentary fibromata, measuring 6 inches in the largest transverse, 8 inches in the largest longitudinal, and 7 inches in the largest oblique diameters. This mass adhered so closely to the surrounding tissues that, had the usual number of incisions been made, it would scarcely have been possible to avoid wounding the intestines and bladder. From November, 1895, to November, 1896, out of 27 cases of hysterectomy for varied and usually severe causes, the author did not lose a patient; the convalescence in every case was relatively short, varying from sixteen to thirty days in even grave cases. The duration of the operation was from twenty to forty-five minutes in complicated cases, in which uterus, fibromata, tubes, and adhesions were removed.

Vaginal Hysterectomy for Genital Prolapse.—This operation, writes A. Codivilla,¹⁷ was formerly but little used in the treatment of uncomplicated procidentia of the genital organs, but has now been adopted as a curative method when all other means of reduction have failed or when extirpation of a useless organ is deemed necessary. Mere removal of the uterus does not, however, suffice, it being necessary to follow it by plastic operations upon the vagina and by perineorrhaphy. The author gives the history of nine cases operated upon. The patients were all of advanced age and in poor general health. All recovered, and there were no complications of any importance either during or after the operation—no hemorrhages and no lesions of the bladder, although in two cases there were extensive adhesions between the bladder and the cervix and vagina. In no case was there any return of the trouble.

Total Extirpation of the Uterus for Cancer.—Rosario Vitanza¹⁸ describes the operations of abdominal and vaginal hysterectomy, giving the methods followed by various celebrated operators. His own modification of the operation consists in: 1. Preventive removal of the neoplasm. 2. Forcipressure on the base of the broad ligaments from below upward, the forceps remaining in place. 3. Ligature of the uterine appendages from above downward. This combination of ligature and forcipressure gave such successful results in a case

upon which he operated that he is convinced of its value and intends to put it into practice as soon as the occasion offers.

Fibrous and Dermoid Cyst of the Ligamentum Rotundum.—Fischer.⁷ While fibromata of the round ligament are sometimes reported, the literature does not contain an account of a dermoid cyst in this region. Fischer describes a case of each which have been under his observation.

Deciduoma Malignum.—Alesko-Stroganowa¹⁸ adds another case to those heretofore reported (40). The diagnosis was based upon an examination of curetted portions of the uterine mucous membrane; uterus removed per vaginam; complete recovery.

Embryonal Tissue in Dermoid Cysts of the Ovary.—Mertens⁶ examined a dermoid cyst which was removed from the ovary of a 6-year-old child. Among other embryonic structures there were found two dental sacs in the first stages of development; from these a series of sections were cut and subjected to a careful microscopic examination. The cyst contained a lower jaw with aforementioned rudimentary dental sacs, structure resembling tongue tissue, further salivary glands with excretory ducts, a larynx surrounded by a thyroid gland, a compressed medulla, trachea, and, finally, a portion of gut connecting with the trachea. A piece of bone covered by scalp was also found.

Cancer of the Rectum.—James P. Tuttle¹⁹ believes that cancer of the rectum can be cured in over ten per cent of the cases, and that the radical operation at least doubles the patient's expectation of life, and even as a palliative measure is most successful and beneficent. The procedure which will enable us to remove the tumor thoroughly in the least possible time and with the smallest degree of shock should be the one selected in each individual case. The elements in the production of shock consist in the length of time the patient is under the anesthetic, the size of the incision, and the hemorrhage incurred. The exhaustion which follows the operation will depend largely upon the amount of surface left to granulate and from which suppuration will necessarily take place. It is most important, therefore, to leave as small an area of such surface as is possible in every case. When the tumor does not involve more than the lower inch and a half of the rectum, it may be easily dissected out from below without disturbing any of the bony floor of the pelvis. In such cases the Cripps or Allingham operation, supplemented by the bringing down and suturing of the extremity of the gut to the margin of the anus whenever possible, is the most advisable method. Rapidity is of the utmost importance in these operations, in order to avoid hemorrhage, as it is impossible to catch and tie the different vessels as they are cut. The utmost familiarity with the anatomy and the relation of the parts, and boldness in the operator, are necessary for success in these methods. When the tumor extends for two or three inches up the rectum, excision of the coccyx will afford abundant space for the removal or resection of the

diseased area. Above these limits the Kraske operation, or some of its modifications, will generally be necessary.

Retroflexion.—Stratz³ tabulates the results of those operations which rectify the abnormal position from Douglas' cul-de-sac. Of 40 cases operated upon, 37 cases show at present a favorable result. Of 15 cases which have been under observation for a more extensive period, in 13 cases a permanent success has been obtained; 4 passed through normal confinements; 1 had a miscarriage, due to traumatism, one year post operationem, complicated by puerperal fever and a recurrence of the retroflexion. The operations from the posterior fornix have the advantage over anterior vaginofixation that subsequent confinements are free from the dangers and complications observed after the latter operation.

Meyer.²⁰ Whenever the uterus is mobile the pessary, in spite of all much-praised operations, remains the rational therapeutic measure. In the rare cases when, in virgins, local treatment is required, the pessary should be introduced during chloroform narcosis. Should the pessary not retain the proper position, massage of the uterine ligaments, to improve their tonus and elasticity, is advised; the lifting of the uterus (Thure-Brandt) is, when practicable, recommended. Abnormal shortness of the anterior vaginal wall may be remedied by Skutsch's operation, and defects of the pelvic floor must be removed by proper plastic operations. Scar tissue which interferes with the wearing of a ring can in most cases be removed by massage; if this is not successful the bands must be divided. Should, in spite of this, the wearing of the ring be without benefit, Alexander's operation is advised, but vaginofixation is contraindicated except in cases where a subsequent pregnancy may with certainty be excluded.

Pruritus, Vaginismus, and Hyperemesis Gravidarum.—Schaeffer.²¹ Pruritus and vaginismus were caused by a vulvitis pruriginosa which, resisting all treatment and making patient's life unbearable, was permanently cured by removal of both nymphæ and the hymen. Some time after this patient became pregnant, which state was complicated by hyperemesis. After confinement all unpleasant symptoms disappeared. Schaeffer considers the pruritus and vaginismus of neurotic origin. The accompanying inflammatory processes are secondary and reflex in character. The best remedy is the complete removal of these altered tissues.

Chlorosis.—Blondel²² believes that chlorosis is an intoxication by the products of non-assimilation thrown into the economy during the entire period of growth, and which should, normally, be rendered inert by the antitoxic action of the internal secretion of the thymus during childhood and by that of the ovary later. This may be due to premature atrophy of the thymus or, especially, to delayed development or irregular supply of the ovarian secretion. He discusses his reasons for this opinion.

Ichthyol in Gynecology.—Lorain²² advocates ichthyol in

vaginal dressings and applications upon the abdominal wall for analgesic effect ; as a resolvent for inflammatory lesions of the appendages, peritoneum, and pelvic cellular tissue ; by mouth as a stomachic tonic.

Uterine Fibroids.—C. Platon⁴⁰ reports an abdominal hysterectomy for submucous fibroid by Villeneuve, as showing the absolute necessity for surgical treatment in cases with intractable hemorrhages.

Cases of spontaneous atrophy of uterine fibroids after delivery are reported by Charpentier²⁷ and by Batuaud.²⁷

Jacobs⁴¹ reports 27 operations for uterine fibroids in 1896, with 3 deaths, only 1 due directly to the operation. The operations included 1 myomectomy, 1 vaginal hysterectomy, 6 supravaginal amputations, 3 simple vaginal hysterectomies, 4 such by morcellation, 12 total abdominal hysterectomies. The last-mentioned gives the most brilliant results. In spite of good results Jacobs has abandoned the combined route in this operation in favor of the abdominal route. In this operation he inserts a corkscrew into the uterus, attaches it to the chain of Reverdin's suspension apparatus, raising the uterus above the abdomen and avoiding the necessity of assistance in holding it. He ligates the ovarian arteries, opens and separates the layers of the broad ligaments as far as the cervix, and ligates the uterine arteries. With scissors he opens the posterior cul-de-sac, and continues the incision in a circular direction within the ligatures upon the uterine arteries. After removing the tumor he stitches the broad ligaments, unites the vagina and peritoneum by interrupted sutures, leaving a small vaginal opening for the insertion of a gauze drain for the pelvis. The Trendelenburg position is employed.

Infection of Ovarian Cysts.—G. Heinricius²⁴ publishes a case in which careful bacteriological examinations were made. A young woman had an ovarian cyst which had given rise to no symptoms, but which became infected during the puerperium, with a rise of temperature. An intrauterine infection evidently existed, as the lochia contained a large number of micro-organisms. Although absolute proof was lacking as to the identity of the diplococci found in cyst with those of the lochia, the author considers it more than probable that these cocci passed from the uterine cavity into the cyst, as an ovarian abscess may follow a puerperal streptococcus infection. He thinks that they probably entered the cyst by the lymphatics or by thromboses in the veins, and produced a putrid decomposition. A peritoneal infection also occurred, as bacteria of the same kind were found in the peritoneal exudate. These may have entered the abdominal cavity from the cyst, in whose walls bacteria were found, though they could not be followed far through these walls.

Ed. Schwartz²⁴ describes three cases of suppuration of ovarian cysts. In two delivery had immediately preceded the suppuration, which he believes was due to a post-puerperal infection extending to a pre-existing cyst. The other case was

one of suppuration of cysts of both ovaries, occurring in a young woman of 22 suspected of having tuberculosis. Though no pyogenic bacteria could be found in the pus and liquids, and though inoculation gave negative results, no cause for suppuration other than tuberculosis suggested itself.

Pelvic Abscess.—Neil Macphatter³³ advocates the following treatment for pelvic abscess, especially in broken-down tubal pregnancies between the folds of the broad ligament, hematoceles, formed pus, and old inflammatory masses adjacent to the uterus and walled off from the peritoneal cavity; not in recent pyosalpinx or cavities liable to rupture through the peritoneum. While the cervix is held to the opposite side an incision, sufficiently large to admit the finger, is made through the outer muscular layer, above the circular artery. The index finger is introduced, passed up by the side of the uterus to the upper border of the broad ligament, then outward between its layers until the abscess is opened, and then is withdrawn. Irrigation and packing with iodoform gauze follow.

Pyosalpinx in a Young Girl.—H. L. E. Johnson³⁷ reports a case of double pyosalpinx in a girl of 19, following sea-bathing, when over-heated, during menstruation. Both ovaries were cystic, and they were removed with the tubes through the abdomen. Recovery was complete. To prevent prolapse or displacement of the uterus he stitches the anterior and posterior edges of the broad ligament together, drawing the anterior surface of flap very short and tense, and including by a suture or ligature the round ligament on each side, which has been previously drawn out and rendered tense. This keeps the uterus in the normal anterior position.

Vaginal Section.—A. H. Goelet⁴² advocates vaginal section in surgical disease of the appendages.

Influence of the Genital Apparatus of Woman.—L. M. Bossi²⁹ reports several cases as showing the influence of the female genital apparatus upon tissue metabolism. The most interesting was a woman, 46 years old, who menstruated at 10, married at 15, and had had five children, the last at the age of 23. Menstruation was regular until 31; since then too frequent and abundant, with attacks of sacro-lumbar pain and uterine colic. For fifteen years the patient had been under treatment for utero-ovarian lesions, and for ten years had suffered from serious intestinal and urinary difficulties. Nine years before she had had a severe rheumatic attack, and since then had been subject to acute gouty attacks, with digestive disorders and diminished urine, beginning a few days before each menstrual period and lasting ten to fifteen days, unrelieved by any therapeutic measures. Examination showed poor nutrition, marked anemia, large gouty deposits in and around the elbow and knee joints and those of the fingers and toes, prolapse and slight retroversion of the uterus, scrapings of which led him to suspect incurable disease. Immediately after a menstrual period with an acute gouty attack Bossi removed the uterus and ovaries. On the succeeding day pain

in the joints had diminished, and within ten days all signs of the acute inflammation had disappeared. The chronic articular deformities also decreased rapidly, and in nine weeks no deposits remained, locomotion was easy, the joints normal, and nutrition greatly improved. The amount of urine passed the day before the operation was 870 cubic centimetres, with 13.10 grammes of urea. This rapidly increased subsequently, and nine weeks later the patient passed 4,100 to 4,500 cubic centimetres daily with 47 to 59 grammes of urea.

Closure of the Abdominal Wound.—In an extensive article upon this subject, the investigation of which was aided by experiments upon twenty-five dogs, Felice La Torre²⁹ says the causes of hernia after abdominal operations are chiefly (1) defective union of the musculo-aponeurotic layer or relaxation of the cicatrix, (2) conditions which lead to the union of this layer by second intention, (3) circumstances which relax, tear, and predispose to relaxation of the cicatrix. A good closure of the abdomen results from three principal factors: (1) the tissues divided and sutured, (2) the suture material, and (3) the method of applying it. Suture of the aponeurotic tissue of the linea alba is often the cause of hernia, which does not occur if the incision is through the muscle. The incision should be made in the linea alba, and before closing it the aponeurotic tissues should be removed as far as to the muscular substance of the recti, and the sheaths and muscles sutured. For old or sterile women the tier suture of the linea alba may be employed if the conditions necessary for a good cicatrization can be secured during and after operation, but as that is almost impossible the incision may be made through a rectus muscle. He removes the linea alba in all cases before closing the abdomen. In cases of secondary closure of the abdomen the incision and suture should always be in the substance of the recti. Of suture materials, silk and catgut are preferable. The tier suture is best, uniting separately (1) peritoneum, (2) when possible, the posterior layer of the sheath of the recti or the transversalis fascia, (3) the recti, (4) the anterior layer of the muscular sheath, (5) skin and subcutaneous tissue. The material and form of suture may well be varied, but the tissues should invariably be treated as described. After operation every precaution should be taken to secure primary union.

Atresia of the Uterus.—A case of atresia of a uterus didelphys, leading to retention of menstrual fluid, is recorded by A. L. Galabin.⁴⁶ The retained fluid had distended uterus and tubes, the latter containing probably ten or twelve times the amount that the uterus did. The tube was not obviously dilated at its uterine end, which was pervious. The writer believes that the collection in the tube was really the reflux from the uterus, and that probably in other cases with less marked distension of the tube the fluid in the latter comes from the uterus, though the isthmus is apparently undilated. In regard to treatment he advises free incision of the cavity, antiseptic irri-

gation, and immediate packing with iodoform gauze to prevent the entrance of germs, repeating this in twenty-four hours.

REFERENCES.

¹ Cent. für Gyn., No. 14. ² Wien. Med. Woch., No. 12. ³ Cent. für Gyn., No. 13. ⁴ Deutsch. Med. Woch., No. 16. ⁵ Wien. Med. Woch., No. 14. ⁶ Zeit. für Geb. u. Gyn., Bd. xxxvi., H. 2. ⁷ Monatschr. für Geb. u. Gyn., Bd. v., H. 4. ⁸ Arch. für Gyn. Bd. liii., H. 2. ⁹ Ann. of Surg., May. ¹⁰ Treatment, March 11th. ¹¹ Ann. di Ost. e Gyn., Feb. ¹² Treatment, March 25th. ¹³ Münch. Med. Woch., No. 17. ¹⁴ Ann. of Gyn. and Ped., May. ¹⁵ Am. Gyn. and Obst. Jour., April. ¹⁶ Am. Gyn. and Obst. Jour., May. ¹⁷ Ann. di Ost. e Gyn., April. ¹⁸ Cent. für Gyn., No. 15. ¹⁹ Jour. Am. Med. Assn., March 27th. ²⁰ St. Pet. Med. Woch., No. 11. ²¹ Cent. für Gyn., No. 12. ²² Med. News, April 17th. ²³ Med. Sent., April. ²⁴ Ann. de Gyn., April. ²⁵ Jour. des Sages-Fem., April 1st. ²⁶ Rich. Jour. Pract., March. ²⁷ Jour. de Méd. de Paris, April 11th. ²⁸ Lancet, March 27th. ²⁹ La Gynéc., April. ³⁰ Jour. des Sages-Fem., April 16th. ³¹ L'Écho méd. du Nord, Feb. 7th. ³² Jour de Méd. de Paris, March 28th. ³³ Amer. Jour. Surg. and Gyn., March. ³⁴ Chic. Clin. Rev., April. ³⁵ West. Med. Rev., April 15th. ³⁶ Edin. Med. Jour., April. ³⁷ Jour. Am. Med. Assn., April 1st. ³⁸ Memph. Med. Jour., April. ³⁹ Bull. gén. de Thér., April 23d. ⁴⁰ Gaz. de Gyn., April 15th. ⁴¹ Bull. de la Soc. Belge de Gyn. et d'Obst., No. 2. ⁴² N. C. Med. Jour., April 5th. ⁴³ Jour. de Méd. de Paris, April 25th. ⁴⁴ Jour. de Méd. de Paris, April 18th. ⁴⁵ Practitioner, April. ⁴⁶ L'Écho méd. du Nord, April 4th. ⁴⁷ L'Écho méd. du Nord, April 25th. ⁴⁸ Pac. Med. Jour., April.

DISEASES OF CHILDREN.

Babies' Wards of the New York Post-Graduate Hospital.—Henry Dwight Chapin¹ gives a description of the methods in vogue at this institution. In addition to the wards there are special waiting and examining rooms, isolating rooms with a steam sterilizing apparatus, a sun parlor encased in glass, and a roof garden. An ozone generator is placed in one of the wards and used in the treatment of pneumonia cases. A large metal incubator is employed for prematurely born infants; the results obtained from it have not been so good as those reported from Paris and Moscow. Each applicant for admittance is inspected in the examining room by the house doctor. If suitable for the hospital, the infant is given a warm bath and sponged off with a solution of the bichloride of mercury (1:2000) before being taken upstairs to the receiving ward. If too ill for the bath the sponging alone is employed. Special care is exercised when female infants have any form of vaginal discharge; antiseptic pads are applied, and the diapers are soaked in Labarraque's solution, a quart to a pail of water, before being otherwise cleansed. There is a susceptibility of infants to hospitalism. The earlier the age the greater is the susceptibility and the quicker it ensues. The author therefore believes that infants should be placed in a hospital only under exceptional circumstances, acute cases of illness alone being admitted. Discharge should take place immediately upon recovery, even if the latter is only partial. A speedy or satisfactory convalescence is impossible for an infant in a hospital, for one of the first symptoms to be noted is a progressive loss of weight

that is not dependent upon the original disease, as it often takes place after recovery when the infant is not sent out soon enough. Female children that are kept in the hospital too long frequently get up a more or less severe form of vaginitis. This is due to lack of tone and vulnerability of the mucous membranes that accompany hospitalism.

Benzine-poisoning in a Child.—Boltenstern¹ reports the case of a 3-year-old child who recovered after having been given a teaspoonful of benzine by mistake.

Carcinoma of the Colon.—W. A. Garrard² presents a case of especial interest on account of the very early age of the patient, who was scarcely 11 years old when attacked.

Chorea.—A. B. Marfan³ considers that of the many medicines recommended for this affection, two only give really good results, these being antipyrin and arsenic. The first causes an amelioration of the motor disturbances as early as the first week, and should be given in three divided doses at meal-times, to the amount of twenty-five grains daily, increasing by eight grains a day until forty-five grains are reached. Some cases do not yield to this treatment. Arsenic may then be tried, and should be administered according to the Aran-Sirédey method, which consists in giving arsenious acid in progressively increasing doses until surprisingly large amounts are taken. Of Boudin's fluid, each fifteen grains of which contain one-seventieth grain of arsenious acid, one drachm is given during the day, increasing the amount by thirty grains daily until intolerance is reached, never, however, going beyond one ounce of the fluid. Should loss of appetite, nausea, and vomiting or diarrhea appear, lower the dose by four grains, and then again administer progressive doses. In from ten to twenty days a cure is usually effected, and the medicine should then be continued in progressively diminishing doses, one drachm less daily.

Congenital Absence of Radius.—Stubenrauch⁴ reports a case in a boy 11 years old. Roentgen-ray photographs were taken.

Congenital Cerebral Diplegia in Nursling born of an Extrauterine Pregnancy.—Grósz⁵ reports the case of a child who lived four months and died of exhaustion. The delivery had been by means of laparotomy. At the autopsy a chronic hemorrhagic pachymeningitis was found, with compression of left cerebral hemisphere and descending degeneration of the spinal cord; compression of right cerebral hemisphere due to intra-abdominal pressure. The author gives a detailed account of the microscopical changes in the brain and cord, and also reviews and discusses the literature of the subject.

Congenital Occlusion of Duodenum and Rectum.—Hess⁶ reports the case of a child which lived two days, having atresia ani and also occlusion of the external urethral orifice, for which an operation was done. At the autopsy a hypertrophied bladder was found, as well as the double intestinal occlusion. Hess reviews the literature and the embryology (etiology) of the case.

Diabetes Mellitus in a Seven-year-old Child.—Sterling⁸ reports the case in detail; death occurred in coma two months after observation began. The author analyzes his case and reviews the literature.

Diphtheria.—An analysis of the results obtained in the treatment of diphtheria at the Boston City Hospital is presented by Frank L. Morse.⁹ The three cardinal points in the treatment were the use of antitoxin, stimulation, and irrigation. Out of 1,760 cases treated before the use of antitoxin there was a mortality of 43.1 per cent; since the introduction of the serum treatment 1,972 cases have been treated with a mortality of 13.3 per cent. The antitoxin used was that prepared by the Boston Board of Health. The ordinary dose for a child 2 to 5 years of age was 1,000 units when there was a moderate amount of membrane on each tonsil. This has been increased to 1,500 units in a child 5 to 10 years of age, and 2,000 units for an adult with the same proportionate amount of membrane. The dose is increased relatively to the amount of membrane present. To children under 2 years of age the dose varies from 100 units to a child 1 month old upward to 1,000 units at 2 years of age. The repetition of the injection is indicated in many cases, but it is rarely repeated in the first twenty-four hours. If the membrane has become sharply defined or undermined around the edges, or has commenced to roll off in places, unless extensive in amount, the antitoxin is not repeated. If, on the other hand, the membrane has extended to the uvula or involves the soft and hard palate, or if there is much glandular enlargement, with a marked septic odor and profuse nasal discharge, a second and even third or fourth injection may be given at intervals of twenty-four hours each. Of the 1,972 cases reported, 170 received a second injection, 24 cases a third, and 2 cases a fourth injection. Albuminuria appeared in 674 instances, but it does not appear to have been due to the antitoxin. Antitoxin rashes occurred in 244 cases. Paralyzes have not been met with more frequently since the use of the serum than before. Irving M. Snow¹⁰ administers to a child over 2 years of age with laryngeal stenosis, or with threatening symptoms, 1,500 to 2,000 units for the first injection, to be repeated in eighteen to twenty-four hours if no improvement; a third dose after a similar interval if necessary. For severe cases in children under 2 and mild cases over 2, 1,000 units, repeated if necessary; the second dose is not usually required. James L. Taylor¹¹ discusses the medico-legal aspects of the use of antitoxin. From a scientific standpoint, he thinks it is to be regretted that where accidents have occurred a portion of the serum used in that particular injection had not been subjected to a careful examination. The general practitioner, however, cannot make tests of each specimen used, and must rely upon the guarantees of purity furnished by the manufacturer. Unfortunate results have been ascribed by some to a supposed idiosyncrasy on the part of the subject. This explanation is inadequate. It seems to the author that a much more rational

explanation of the ill effects of the serum may be deduced from the fact that it is an animal matter and therefore has a tendency to change. René Petit,¹² out of 700 cases of diphtheria in the Hospital des Enfants-Malades, reports 48 cases of paralysis. In regard to the effect of serum treatment, the statistics are as follows: Diphtheria treated about second day, 6.25 per cent paralysis; about third day, 19 per cent paralysis; about fourth day, 24.7 per cent paralysis; about seventh day, 38.7 per cent paralysis.

Earache.—In an article on the significance of earache and its early management, Frank Whitehill Hinkel¹⁰ concludes as follows: (1) Earache, however slight, may signify disease that neglected may terminate in loss of hearing, even of life. 2. Recurring earache in children is always associated with lymphoid hypertrophy of the pharynx; permanent impairment of the function of the ear is prevented only by early surgical treatment of the adenoids. 3. Acute inflammation of the middle ear may be frequently aborted if proper treatment be administered early. 4. If relief be not obtained by the second day an expert examination of the ear should be made, and proper surgical treatment applied to relieve intratympanic pressure and possible involvement of the mastoid or intracranial structures.

Feeble-mindedness and Viciousness in Children as an Inheritance.—In an article upon this subject Martin W. Barr¹³ remarks that there are people who think that everything may be done if the doer, be he educator or physician, be only called "in season." No doubt; but "in season" would often be one or two hundred years before the child was born, and people never send so early as that. A family whose head dies insane or epileptic does not of necessity consist of lunatics or epileptics; but their children may be idiots, paralytics, or scrofulous. What the father transmits to the children is not insanity, but a vicious constitution which will manifest itself under various forms. We frequently observe viciousness appearing in different forms in the same family, the parents irreproachable in every respect, with the only explanation that the evil may be traced to a common ancestor who had been made mad by vice, inheritance, or meanness. Genius and viciousness go side by side, and a genius is not infrequently found with degenerate children. Criminology is fast proving the criminal to be an atavistic creature who cannot be blamed for the impulses born in him—that in a large majority, certainly in the grosser crimes, the impulse is the result of an inherited taint. This once accepted must induce new ways of viewing and dealing with criminals from a medico-legal standpoint, and later, it is to be hoped, the adoption of measures for the prevention of crime through medico-pedagogic methods. Reformatories for this class will in time be proved to be as unsuccessful as prisons. A moral imbecile is one born destitute of the moral sense, therefore vicious. How can we reform what has never been formed? Even granted that the individual has reformed during the brief

period of training—sent back into the world he may lead an absolutely blameless life, and yet transmit the taint in a concentrated form, reproducing a monstrosity both morally and mentally. Science points to a threefold method which society will sooner or later be forced to adopt in self-defence—the enactment of stringent marriage laws, surgical interference, and permanent sequestration.

Gastro-intestinal Hemorrhages of the Newly-born.—M. Oui¹⁴ holds that by a careful regulation of diet from the first day of life we can, in great measure, prevent the occurrence of these hemorrhages. Should they, however, occur, the indications for treatment are: 1. To deplete the intestines in order to facilitate the arrest of the hemorrhage. 2. Sustain the vitality of the infant and combat its anemic condition. 3. Stimulate the activity of the skin. 4. Treat any existing general disease which might be the cause of the hemorrhage. The respiratory movements of the child must be absolutely free, for which reason bandages and clothing must be loose. Heat will meet the first three indications for treatment, and may be applied by means of a couveuse or by wrapping the infant in heated cotton batting. Friction with alcohol is also to be practised, and hot baths are useful. In the matter of diet, the stomach and intestines are not to be overloaded, and yet the child's strength must be kept up, and the liquids ingested ought to favor the vasoconstriction of both organs. *The child must not nurse.* Every hour a teaspoonful of the mother's milk must be obtained, to which are added tiny pieces of ice and four to five drops of brandy; seventy-five to ninety minims of brandy may thus be given during the twenty-four hours. The author does not believe in the efficacy of internal medication nor rectal injections. In acute anemia, in collapse or arrested breathing, dry cups should be applied to the chest, and we may resort to artificial respiration, injections of ether, and inhalations of oxygen. Hypodermatic injections of artificial serum have been successfully used by Luton, Hutinel, and Weiss. The one most easily prepared consists of one hundred grains sodium chloride to the quart of boiled water; six to eight ounces may be injected in two and a half drachm doses during the twenty-four hours.

Habit-Chorea.—An analysis of 147 cases is presented by Wharton Sinkler.¹⁵ The affection occurred equally as often in both sexes. Heart murmurs were noted in 32 cases. In most instances voluntary effort controlled the movements temporarily. The season of the year seemed to exert little or no influence upon the production of the disorder. The eyelids were most commonly affected, then the facial muscles, and next the head and neck. Sudden general twitching or jumping of the electric type is the most rare form. Optical defects occurred in the majority of cases. Thirty-five of the patients were attending school. In 9 cases chorea minor had preceded the habit-chorea, and 2 cases of habit-chorea coexisted with an attack of Sydenham's chorea. Obstructive disorders of the nose were

common complications. In nearly all cases the general health was at fault.

Hemiplegia Cerebralis after Diphtheria.—Levi⁶ reports the case (6-year-old girl), which ended in recovery. The literature is reviewed, and a lengthy bibliography given at the end.

Hereditary Ataxia, or Friedreich's Disease.—Daniel R. Brower¹⁶ reports three cases of this disease in the same family. In the antecedent history there is no evidence of venereal disease or alcoholism, but there is a striking record of pulmonary tuberculosis.

Hereditary Atrophic Kidney in Early Childhood.—Hellen-dall⁶ contributes the case of two sisters, 2 years and 6 months old respectively; both died, and showed at the autopsy chronic interstitial nephritis with cortical chondromata in the younger child. The mother suffered with chronic nephritis. The literature as well as the clinical course is minutely given.

Hunchback, Operative Treatment of.—Lange¹⁷ approves of Calot's method, which he has successfully applied in several cases. He gives the technique in detail, and points out its dangers as well as its advantages.

Hydroencephalocele.—Kehrer¹⁷ reports case of operation five and a half hours after birth, removing a hydroencephalocele containing 450 grammes of water and 30 grammes of cerebellar tissue. Wound healed, leaving an opening into occipital fossa. Nineteen weeks later the child was fat and strong, but had a large hydrocephalus and beginning atrophy of optic nerves.

Infantile Spastic Paraplegia, Pathology of.—Benedikt¹⁶ discusses the subject exhaustively and insists that the lesion is a central one. The cases often show malformations of the cranium, either very small, or very large, or very asymmetrical skulls.

Intussusception.—R. Lawford Knaggs¹⁹ reports two cases successfully treated by laparotomy. In one of the cases reduction was easy of accomplishment after the symptoms had lasted for forty-four days. H. Meek²⁰ reports 2 cases with a plea for early operation.

Intestinal Bacteria.—According to Charles D. Aaron²¹ micro-organisms have their habitat in the healthy body as much as in the diseased, and the bacterial flora within the intestines have a physiological as well as a pathogenic significance greater than in other organs. The fermentative and putrefactive processes in the intestines have their inception largely in these. Escherich has found in the case of milk feces of an infant a very clear evidence that the bacterial flora are determined in the intestines by the food stuffs, and that with a varied diet a differentiation of the bacteria always appeared. This dependence of the bacteria upon the food, as evidenced by the feces, shows that the gastric juice does not possess adequate capacity to destroy the micro-organisms. There is no bacterial vegetation in the intestines which we can say originates there. The number of bacteria begins to increase at the duodenum until they attain a great enormity at the cecum. Where peri-

stalsis and motility are reduced, fermentation sets in, inasmuch as through the retarded action the bacteria have a longer opportunity to multiply. There is a great probability that the catarrhal and other inflammations of the intestinal membrane do not always originate from any specific or chronic cause. For it seems, in fact, as if the numerous bacteria of the intestine have the power to produce certain diseases under conditions not yet entirely defined. It seems, also, that one and the same species of bacteria can cause now a lighter and again a more aggravated condition of the intestine. A harmless bacterium, such as the *bacillus coli communis*, people seem to endure without injury, while again it may be the cause of catarrh of the large intestine and of dysentery. The most prominent of the bacteria that seem to have a bearing upon the pathological condition of the intestines is the *bacillus coli communis*. When its virulence is intensified, or when it enters organs bordering on the intestines, it superinduces disease, not only of the intestinal mucous membrane, but also of the neighboring organs. Other bacteria found in the intestines are the *bacillus lactis aerogenes* (capable of quickly fermenting sugar of milk), *Schleier bacillus*, *bacillus subtilis*, *bacillus enteritidis* (Gaertner), *proteus vulgaris*, *bacillus putrificus coli*, *bacillus liquefaciens ilei*, *bacillus butyricus*, *bacillus of green diarrhea* (Lesage), *spirilla*, *streptococcus coli gracilis*, *streptococcus coli brevis*, and *saccharomyces albicans*. Szegö⁶ made bacteriological examinations of breast milk and found *staphylococci* (*cereus albus*, *pyogenes albus*, and *cereus citreus*) in 27 of 46 experiments. In 54 experiments on nurslings, aged 10 days to 6 months, the *bacillus coli communis*, *streptococcus*, *bacillus pyogenes fetidis*, and *bacillus lactis aerogenes* were present most frequently, and a number of other bacteria less often. In 32 cases of dyspepsia no striking difference in the number or kinds of bacteria could be discovered.

Laparotomy for Intestinal Invagination in Eight-months-old Child.—Poppert¹⁷ reports the case, which resulted in complete cure. The literature is also reviewed.

Leukemia, Acute, in Childhood.—Theodor⁸ reports a case in a 4-year-old boy, making the forty-fifth case to be reported, and only the sixth occurring under the age of ten years. Numerous blood examinations were made, and a diagnosis of acute splenic and lymphatic leukemia established. Death occurred, but no autopsy was allowed.

Lobar Pneumonia, Acute, in Children.—O. W. Sherwin²² writes that the attack comes on suddenly with vomiting, and perhaps a chill, followed by the usual physical signs. The child usually refers to pain in the abdomen. Under 6 or 7 years of age we do not see the sputum. Crying of the patient from fright and pain makes the diagnosis difficult at times. Auscultation with the phonendoscope while the child is asleep is often possible. The temperature should be taken by the nurse while the patient is asleep. When a physician finds a child with a temperature of 104° F., a pulse of 120, and a respi-

ration of 50 or 60, on the first or second day of sickness, and fails to find the physical signs of pneumonia, he will make a mistake if he calls the disease gripe, influenza, worms, etc. Do not try to lower a temperature of 104° or 105° F., for it will do more harm than good. If it reaches 106° F., lower it by bathing to 103° or 104° F. Do not give the coal-tar preparations.

Lymph-node Swelling with Cutaneous Eruptions in Childhood.—Steinhardt² prevented this condition by means of great cleanliness of the child's person and bedding, as well as by cooling (soothing) applications to prevent itching, and antiseptic powders or ointment to promote healing.

Magnetic Extraction of Intubation Tubes.—John Bartlett²³ describes this process, which has been adopted with much success in Chicago. The tubes are made of iron, and the extractor is arranged as an electro-magnet. Storage or cautery batteries or dynamos are used to excite the current. "With an ordinary instrument one needs to prod about for the tube, but the tube is found to spring up to meet the magnetic extractor."

Mastoid Involvement complicating Acute Middle Ear Suppuration.—J. E. Sheppard²⁴ gives the review of 114 cases, the summary of which is as follows: 1. For opening the mastoid the gouge or chisel was universally used, excepting only those cases in which the cortex was so much softened as to make the sharp curette more applicable. 2. For clearing out the mastoid sharp curettes were used for the outer, blunt curettes for the deeper portion. 3. Gripe, outside of acute affections of the nose and naso-pharynx due to colds, etc., has played the most important rôle in the etiology. 4. The symptoms are important in the following order: (a) pain, either in the mastoid or some part of the affected half of the head; (b) tenderness either of whole or part of the mastoid, oftenest of the apex; (c) drooping or bulging of the posterior superior canal wall into the lumen of the canal, especially if this is near the membrane; (d) posterior superior perforation of the membrane, especially if pouting or teat-like; (e) pulsating tinnitus, when it continues as a marked symptom after the time it should have ceased were the cause one of simple middle-ear inflammation; (f) the external symptoms—redness and edema of the mastoid, and pushing outward of the auricle. 5. Abortive measures should be employed in the majority of cases. 6. We must often operate on the strength of one or two symptoms, and often with even these only slightly marked. 7. We should never wait for the external manifestations of mastoiditis, because by so doing we give the pus the same opportunity for breaking through the internal as through the external cortex. 8. The operation, if performed with due care, is relatively free from danger.

Mercyism.—Lewis S. Somers²⁵ reports a case in a child 5 years of age. In this disorder there occurs a voluntary act of regurgitation of the food for the purpose of remastication, the

procedure resembling that of rumination in the lower animals. Occurring in the human subject, it is most frequently seen in degenerates or neurasthenics, or as the result of prolonged mental strain. Mimicry has appeared to be a factor in some reported cases. A lower grade of stomach irritation is probably present in nearly all instances. The regurgitation usually takes place about fifteen minutes after a full meal, but it may occur later. The time consumed in the second is usually greater than during the original mastication. The treatment consists in removing the cause as far as possible, and directing the patient to eat slowly and to properly masticate. Solid food should be prohibited for a time, or should be taken in small quantities. The dorsal or other position unfavorable to the act of regurgitation should be insisted upon for a definite time after each meal. Gastric sedatives, tonics, and laxatives are of service in some cases.

Multiple Mesenteric Chylous Cysts.—Rosenheim²⁶ reports the case of a child 4 years old who had the symptoms of obstruction in the upper third of the small intestine. The autopsy showed a volvulus thirty centimetres below the pylorus, due to twisting of the intestine by three cysts filled with chyle, the largest the size of a fist. These cysts were in the mesentery. In children this is an extremely rare condition.

Myositis Ossificans.—H. Lockwood⁹ reports a case of this rare disease in a boy 4½ years old.

Naso-pharyngeal Adenoids.—Concerning the etiology of these growths, P. McBride²⁷ is of opinion that heredity has a very considerable influence upon their occurrence. A damp atmosphere favors the development of the adenoids, though they are found in every climate. A histological examination leads the author to draw the following conclusions: 1. That the ciliated epithelium may be converted into the stratified squamous variety, and the latter become much thickened as a result of the intermittent pressure to which the hypertrophy is subjected. 2. That this change tends to occur in the smaller nasopharynx of the young child. 3. That the cilia may become destroyed over large areas and the epithelia thinned to a varying degree; and, further, that emigration of the leucocytes is not general. 4. That there is a tendency to an overgrowth of fibrous tissue which commences in and around the blood vessels, and gradually invades the lymphoid tissue, leading to a shrinking of the growth. 5. That this process is not confined to the period at or after puberty, but occurs also in very young children, and is, therefore, independent of the age of the patient.

Obstetrical Paralysis of Infants.—W. H. Haynes²⁸ states that there are three kinds of obstetrical paralysis—namely, that of the face, arm, and lower extremities. The first and last of these are extremely rare. The author reports 3 typical cases of true obstetrical paralysis of the upper extremity, where the lesion was solely in the mixed, cervical nerves and brachial plexus. The condition is generally brought about through difficult or instrumental deliveries, necessitating violent obstetrical

maneuvers in which the forceps has been used; traction made on the head or arm; the use of the finger in the armpit as a hook; a pressing of the shoulder under the symphysis pubis; replacing the arm; assisting delivery of the after-coming head or arm; or if the attendant has been forced to extract the body after delivery of the head by exerting great traction force. It may, however, happen in the most simple cases and to the most proficient. Recovery may be completely spontaneous after a few months, or may be only partial after several years.

Opium-poisoning, Acute, in the Child.—Dörnberger²⁹ reports the case of a child 6 weeks old who recovered. Soothing medicine had been given because the child was cross and restless. The literature is referred to.

Osteomalacia in Infants.—R. Meslay¹² says that two special conditions preside over the etiology of this affection—predilection for the female sex and the influence of pregnancy, yet it is found in the aged, in man, in unmarried women, and even in children. In all, its characteristics are the same, *i. e.*, a general softening of the bony framework, causing a predisposition to spontaneous fracture and to the most varied forms of deformity. For a long period infantile osteomalacia was confounded with rachitis, and to Rehn in 1877 is due the credit of establishing its existence as a morbid entity. Its symptomatology differs little from that of the usual form; its onset is slow and insidious, pain being the first and most constant symptom, a special nervous susceptibility also being marked. Motor troubles appear first as muscular weakness, leading to incurable paresis. The disease is essentially progressive. It would appear to be due to a lack of harmony between ossification in the cartilage of the epiphyses and in the periosteum. The diagnosis between osteomalacia and rachitis should present no difficulty; in the latter disease the incomplete closure of the sutures and fontanelles, the deformity of the maxilla, the shape of the palatine arch, irregularity of the teeth, the rachitic rosary, deformity of the thorax, and knotty aspect of the limbs, serve to clearly distinguish it from the disease in question.

The syphilitic pseudo-paralysis of the new-born occurs at a time when osteomalacia is altogether exceptional and the infant presents other symptoms of syphilis. Friedreich's disease with scoliosis of the dorsal region and talipes equinus is distinguished by its special course, and by the nystagmus, difficulty in speaking, and a species of choreiform instability present. Acute spinal paralysis leaves deformities whose origin is easily ascertained by a study of the history of the case. Hysteria, "the great imitator," is irregular and intermittent, and accompanied by a neuropathic temperament. The exact nature of osteomalacia not being thoroughly understood, it is impossible to establish a rational curative treatment. A nourishing diet, rich in nitrogenous matters and phosphorus, will do much to repair the losses of the organism. Hydrotherapy is a useful adjunct. Alkaline phosphates are recommended by all authorities. Recently T. M. Allison has reported good results from

the administration of red spinal marrow in diseases of the bone (the dose being five grains to fifteen grains t.i.d. for adults), and it is highly probable that it would be valuable in the treatment of infantile osteomalacia.

Otitis Media.—Thomas Barr³⁰ presents a case of chronic purulent inflammation of the middle ear on both sides, proving fatal by an extension, on the left side, through the labyrinth and auditory and facial nerves to the interior of the cranium. Alfred Horsey³⁴ reports a case of chronic suppuration of the middle ear with mastoid infection, sigmoid sinus thrombosis, septic pneumonia, and death.

Oxygen in the Catarrhal Pneumonia of Children.—Oppenheimer³¹ treated fifteen severe cases with oxygen inhalations, and believes it to be a powerful cardiac stimulant. While it will not cure every case, it should be tried even in those cases where camphor and musk have proved futile.

Progressive Paralysis.—Zappert³² reports a case due to hereditary syphilis. The patient was 13 years of age.

Purpura Hemorrhagica and Pemphigus in a Rachitic Child.—Ernest A. T. Steele³³ reports such a case, which appeared to be an advanced type of scurvy-rickets. The complicating pemphigus was unusual and difficult to explain.

Pustular Kerato-conjunctivitis.—Albert Terson.³⁵ This affection is apt to occur in scrofulous children. Blepharitis, otitis, and especially rhinitis, are, as a rule, coexistent. Eruptive fevers also play a part in its etiology. In cases in which there is an abundant secretion, we should not hesitate to check it by means of a daily application of a solution of silver nitrate 1:50 and antiseptic irrigations. When there is inflammation and marked photophobia, without much secretion, caustics and irritants are to be avoided and a general treatment instituted, together with the local application twice daily of iodoform ointment, instillations of cocaine and atropine, and cold to the head. The eyes are not to be bandaged, but a loose piece of black silk may be used, or smoked glasses, or a shade. When there is but little photophobia the yellow binocide of mercury 1:20 may be applied daily. Corneal complications are to be treated by scraping of the pustule, or by cauterizing it with the galvano-cautery or a hot needle. Tonic and hygienic treatment for the scrofulous condition is of the greatest importance.

Rachitis.—Ettore Smaniotto,³⁶ as a result of numerous bacteriological researches, holds with Marfan, Marot, and others that the bacterium coli commune and other bacteria very probably, during the course of chronic gastro-enteritis (which nearly always precedes rachitis), penetrate through the intestinal mucosa, enter the blood current, and, becoming localized in the bones, cause inflammatory troubles. Bacteria may also enter the circulation through the lungs. It is not as yet absolutely proved that rachitis is always of infectious origin, but it is certain that bacteria must play an important rôle in the etiology of the affection.

Refraction of the Eyes.—William Merle d'Aubigne Car-

hart³⁷ presents the reports of the eyes of one thousand school children, with particular reference to astigmatism as shown by the Javal ophthalmometer. Upon these he bases the following conclusions: 1. Changes in refraction of childhood and adolescence are due to slow distension of the eyeball, caused either by strain of accommodation in an otherwise healthy eye, or by the physiological use of an eye weakened by local or constitutional disease or dyscrasia. 2. Such distension of the eyeball results not only in progressive lengthening of the optic axis, but in alteration of the curve of the cornea. 3. A considerable proportion of hypermetropic astigmatism is probably congenital, but much the larger proportion and all the myopic and mixed astigmatism are caused by the same process which lengthens the optic axis from the congenital high degree of hypermetropia of infancy and the high degree of myopia seen typically in German universities and occasionally in our schools. 4. This process of distension is more easily arrested in its earlier stages, and therefore prompt and exact correction of the refractive error, and particularly of the low grades of astigmatism, is indicated in all cases to prevent an extension of the process. In compound myopic astigmatism correction of the astigmatic element is of equal if not of greater importance than correction of the myopic element of the refraction.

Roseola, Epidemic, or Roetheln.—Some notes on the occurrence of a number of cases of the disease in the city of Glasgow Fever Hospital are presented by John Brownlee and Campbell S. Marshall.³⁸ The fever was mild, not over 100.4°. There was slight catarrh of the nose and eyes in the majority of cases. Some congestion and dryness of the fauces was usually present. The tongue was often furred, and occasionally there were prominent papillæ. Enlargement of the cervical glands was a fairly constant symptom. The rash was punctate at first, the points being of a size which was a mean between that of measles and scarlet fever; they were sometimes surrounded by an areola. These points usually coalesced into small patches of less area than those of measles, and not nearly so much raised. They were, besides, more regular in outline. When the rash was general over the body it exemplified the morbilliform type; but the coalescence might be general, and also accompanied by an erythema, as in scarlet fever, and then it was almost an impossibility to distinguish it from a scarlet fever rash. Both these types might be present at the same time on different parts of the same person, and a rash resembling measles on the face might accompany a scarlatiniform rash on the body. The color of the rash was of a rose pink. It usually appeared first on the cheeks, and almost immediately after on the arms and legs, thence extending over the body, though in some cases the trunk remained free. The whole duration was rarely more than two days.

Santonin-poisoning.—J. S. Taylor³⁹ reports a case in an infant 11 months old. The mother had administered what she considered a small quantity.

Scarlatinal Synovitis.—M. A. Bunce⁴⁰ writes that there are two recognized types of joint involvement in scarlet fever: 1. A transient synovitis, polyarticular, usually of a mild grade, appearing with the greatest frequency on the fifth to the ninth day, though it may not occur until as late as the twenty-eighth day. 2. A pyarthrosis, often monarticular, noted only in certain epidemics, ordinarily presenting itself about the third or fourth week. The contents of the joint are purulent from the onset, the affection being attributed to septic emboli. Streptococci and micrococci have been found in cultures made from the fluid drawn from the joints in both types.

Scarlet Fever.—In discussing the relation of the nose and throat to the general systemic condition in scarlet fever, B. F. R. Clark⁴¹ presents the following points of view: 1. That the nose and throat act as points of entrance for contagion is beyond question. 2. The conditions noted there act as a basis for diagnosis. Fever and nausea with a sore throat, with or without membrane, are sufficient to justify the physician in isolating the case in anticipation of an eruption. 3. The condition of the nose and throat also serves as an index of the severity of the contagion and assists in the prognosis. 4. Local treatment is indicated. 5. The throat symptoms are the dominant ones in that form of scarlet fever known as anginose. J. O. Symes⁴² gives the reports of cases of secondary rashes occurring during the convalescent stage.

Splenic Anemia.—Langford Symes⁴³ gives a description of this disease, which, he says, has been noticed by a very few of the writers. It is a persistent and intense anemia affecting infants and young children, accompanied by an enlarged spleen and usually by rickets. It occurs among the rich and poor alike. There is a disposition to hemorrhages; also a condition of leucocytosis which has sometimes developed so great an increase of white blood cells as to resemble leucocythemia, and "border-land," or composite, cases occur which are most puzzling. Our knowledge of the antecedents and cause of the disease is imperfect, but it has usually been attributed to rickets or congenital syphilis. The cardinal symptoms of the disease are: 1. Anemia. The face is puffy, and may be perfectly bloodless or may have a waxy, pallid, bluish hue. More commonly there is a decidedly yellow, sallow, splenic tint with the anemia. 2. Enlarged spleen. 3. Blood changes: an examination shows a loss of red blood cells and hemoglobin, and an increase of the white blood cells. The red cells do not form rouleaux as in health. 4. Rickets. 5. Hemorrhages—*i. e.*, blood extravasations, epistaxis, petechiæ, hematemesis or bleeding from the gums, and a tendency to bruise easily. 6. Edema, especially of the feet. There are, besides, irregular fever, diarrhea, lassitude and weakness, a mucous catarrh, and a depraved appetite. The child is not always thin. The disease is most apt to be confounded with leucocythemia or Hodgkin's disease. As to prognosis, a little over fifty per cent recover. The treatment consists in the administration of arsenic and bone marrow.

Equally important is a highly nutritious diet and healthy surroundings. Iron, quinine, and cod-liver oil do good in some cases. Mercury should only be given if a syphilitic taint is suspected.

Strangulated Hernia in Infants.—Charles N. Dowd¹ reports a case successfully operated upon. He believes that in these cases one attempt at taxis should be made with the child in a hot bath and his legs elevated. If this is unavailing, preparations should be made for an operation, which should be done at once in case the hernia is not reduced by gentle pressure after the anesthetic is given. In any case the efforts at taxis should be very gentle, as they are not free from danger. The danger from taxis increases with the duration of the strangulation. Even if the taxis is successful we have the fear of a recurrence of the condition. Operation of itself presents very little danger. The danger mostly comes from injury to the intestine caused by long-continued strangulation. In 82 recorded cases of operation for strangulated hernia in infants under one year old, death occurred in 17, a mortality of 20.7 per cent. In nearly all the fatal cases the operation was delayed; this seemed to have been the chief cause of the bad results. Infants less than a year old endure the operations remarkably well, the above-mentioned rate of mortality differing little from that of adults.

Stricture of the Urethra in Male Children.—L. Bolton Bangs⁴⁴ reports two cases, the etiology of which was obscure. The author has been led to believe that enuresis and dysuria may sometimes be due to an unsuspected stricture which has been acquired as a result of some post-natal pathological process other than trauma.

Suppurative Joint Inflammations in the Course of Epidemic Cerebro-spinal Meningitis.—Fronz³² relates the case of a $2\frac{1}{2}$ -year-old girl in which the diplococcus intracellularis meningitidis was found in the cerebro-spinal fluid obtained by lumbar puncture during life, and also in the pus from the left ankle joint. The child died after a secondary infection with streptococci. The writer concludes that the meningococcus is capable of producing effusion into the joints, and that these tend to heal, in contradistinction to the streptococcus and staphylococcus joint affections.

Tubercular Meningitis.—J. Allison Hodges⁴⁶ directs attention to the diagnosis of this disease. The prodromal symptoms are vague and often misleading. Too much importance cannot be attached to the mode of invasion. In simple meningitis there is a stormy onset and a convulsion ushers in the disorder, while in tubercular meningitis the initiatory symptoms are so indefinite as often to be deceptive. There is simply a failing of the general health and more or less emaciation. This change of condition may be rapid and striking, or scarcely noticeable. During the progress of change another symptom, which may be termed a moral change, develops itself; the patient, according to its individual temperament, may exhibit all the phases and

variations of its nature. Formerly bright and playful, it now becomes morose and sluggish, or irritable and disagreeable. This change of disposition is often supposed to be due to dentition or some gastric disturbance, but if fully investigated no such causative factor is discovered. Coincident with the moral change a violent, paroxysmal, and localized headache supervenes, as evidenced by the actions of the little sufferer. Vomiting, propulsive or regurgitant in character, is usually associated with the headache, but no pain or nausea as in gastric or hepatic disturbances. These symptoms, accompanied by a mild degree of pyrexia, a slightly accelerated pulse, wakefulness, photophobia, constipation, contraction of the pupils, with possibly some hyperesthesia of the abdomen, constitute the prodromal symptoms.

Umbilical Fistulæ, Etiology of Congenital.—Stierlin⁴⁶ reports two cases successfully operated upon. An open Meckel's diverticulum was found in one, a patent urachus in the other; both were removed. The open diverticulum probably forms in this way: The pervious ductus vitello-intestinalis extends for a shorter or longer distance into the umbilical cord, and is either cut when the cord is severed or it becomes gangrenous with the rest of the cord stump. Its lining mucous membrane then becomes everted through this opening, causing a red mass at the umbilicus. As the result of abdominal pressure the intestines themselves prolapse through the canal, and so the real danger of this condition originates. Laparotomy is the only rational treatment.

Vaccination.—In discussing the accidents attending vaccination P. Murray Braidwood⁴⁹ says that the principal causes of bad and unprotected vaccination are as follows: The use of lymph taken at too early a period in the course of the disease; vaccination with lymph removed from vesicles themselves badly developed or imperfect in character; the employment of lymph too long preserved; the use of dirty instruments; and the method of operating so that no blood is drawn and the lymph does not reach the cutis vera.

Vitiligo.—Wladimiroff⁵⁷ reports a case in a 6-year-old boy, and discusses the etiology so far as it has been presented in the literature.

Vulvo-vaginitis of Little Girls, due to Gonorrhea.—A. B. Marfan⁵⁸ states that this affection is usually found at from 2 to 7 years, but has been found as early as fifteen days after birth. It is not usually perceived until the discharge is abundant and the pruritus severe, when examination shows inflammation of the vulva and vagina. The disease is contagious, and may be acquired during labor from the maternal discharges, by sleeping in the same bed with an infected person, by means of sponges, vessels, bath tubs used in common with diseased persons, unclean clinical thermometers, and also by venereal contact. The acute form is characterized by a profuse purulent, greenish-yellow discharge, sometimes accompanied by fever. The chronic is called leucorrhea; the discharge is pale and muco-

purulent, and the disease is rebellious to treatment. The complications possible by propagation are Bartholin'sitis, phlegmonous vulvitis, ano-rectal blenorrrhagia (rare), tumefaction of the urethra, harmless urethrorrhagias, cystitis (rare), metritis, salpingitis, and ovaritis, and, the most serious of all, peritonitis. Purulent ophthalmitis is a frequent complication due to inoculation. In the way of a general infection we may have blenorrhagic rheumatism, which is apt to occur early in the disease and to attack various joints, such as the knee, the wrist, the ankle, the small articulations of the hand and foot, and the hip. As to the treatment of the disease, preventive measures should at once be taken to prevent propagation of the affection. A daily vaginal douche should be given with a 1:1000 solution of permanganate of potassium, and the vulva carefully washed with the same. This will cure ordinary cases in about three weeks. In obstinate cases of long standing we shall have to try douches of 1:10,000 bichloride solution, or 1:100 resorcin, or 1:3000 of nitrate of silver. Should these be useless, iodoform bougies may be introduced into the vagina and a pomade applied to the vulva of 1:30 iodoform, 1:30 ichthyol, or 1:100 red precipitate.

REFERENCES.

- ¹ Arch. Ped., May. ² Centralbl. für Kinderhk., vol. ii., No. 3. ³ Quarterly Med. Jour., April. ⁴ La Semaine méd., May 1st. ⁵ Berliner Klin. Wochenschrift, vol. xxxiv., No. 13. ⁶ Arch. für Kinderhk., vol. xxii., Nos. 1 and 2. ⁷ Deutsche Med. Woch., vol. xxiii., No. 14. ⁸ Centralbl. für Kinderhk., vol. ii., No. 4. ⁹ Annals of Gyn. and Ped., April. ¹⁰ Buffalo Med. Jour., May. ¹¹ Jour. Amer. Med. Assoc., April 24th. ¹² Rev. mens. des Mal. de l'Enf., Feb. ¹³ Med. Times and Hosp. Gaz., April 17th and 24th. ¹⁴ Rev. prat. d'Obst. et de Ped., Feb. ¹⁵ Amer. Jour. Med. Sci., May. ¹⁶ Jour. Amer. Med. Assoc., May 8th. ¹⁷ Münchener Med. Woch., vol. xlv., No. 16. ¹⁸ Wiener Med. Presse, vol. xxxviii., No. 17. ¹⁹ Lancet, April 24th. ²⁰ Med. Rec., March 13th. ²¹ N. Y. Med. Jour., May 8th. ²² Atlantic Med. Weekly, April 17th. ²³ Chicago Clin. Rev., April. ²⁴ Med. News, April 24th. ²⁵ Med. Rec., April 17th. ²⁶ Deutsche Med. Woch., vol. xxiii., No. 10. ²⁷ Edin. Med. Jour., April. ²⁸ Brooklyn Med. Jour., May. ²⁹ Münchener Med. Woch., vol. xlv., No. 15. ³⁰ Glasgow Med. Jour., April. ³¹ Wiener Med. Woch., vol. xlvii., No. 16. ³² Wiener Med. Woch., vol. xlvii., No. 15. ³³ Lancet, April 17th. ³⁴ Canada Lancet, April. ³⁵ Jour. de Clin. et de Ther. inf., April 1st. ³⁶ Rev. des Mal. de l'Enf., March. ³⁷ N. Y. Med. Jour., April 17th. ³⁸ Glasgow Med. Jour., March. ³⁹ Med. Rec., May 1st. ⁴⁰ Phil. Polyclinic, April 17th. ⁴¹ Phil. Polyclinic, May 1st. ⁴² Bristol Medico-Chir. Jour., March. ⁴³ Dublin Jour. Med. Sci., March. ⁴⁴ Med. Rec., April 10th. ⁴⁵ Gaillard's Med. Jour., April. ⁴⁶ Deutsche Med. Woch., vol. xxiii., No. 12. ⁴⁷ Arch. für Kinderhk., vol. xxi., Nos. 5 and 6.

INDEX TO VOLUME XXXV.

A

PAGE

Abdominal section, review of seventeen hundred cases of, from the standpoint of intraperitoneal drainage. Clark.....	481, 650
surgery, historical sketch of. Chadwick.....	850
Abortion, septicemia from self-induced. Shoemaker.....	637, 701
Abrahams. Appendicitis complicating pregnancy.....	205
Abscesses in both cornua and broad ligament, uterus, tubes, and ovaries removed for. Fry.....	284
Abstracts, permission to publish.....	404
Acetone in eclampsia Clark.....	196
Adnexa, leaving the uterus in situ after excision of. Fish.....	86
Amputate, when to, in preference to the usual operation for lacerations of the cervix uteri. Emmet.....	858
Appendages, hysterectomy for inflammatory disease of. Hall.....	562
Appendicitis complicating pregnancy. Abrahams.....	205
and perityphilitis in their relations to obstetrics and gynecology. Mundé.....	852
Appendix, distended. Stone.....	412
Ashby. Some recent cases of hysterectomy illustrating the advantages of both the abdominal and vaginal routes....	827

B

Baldy. Antistreptococcic serum in a case of acute puerperal lymphangitis and phlebitis	645, 701
Method of preventing vaginal prolapse following hysterectomy.....	81
Note on a case of movable kidney.....	818
Ballantyne. Congenital prolapsus uteri.....	161
Bennett. Hemorrhage from premature separation of the placenta....	699
Bettmann. Contribution to the pathology of the Fallopian tubes.....	685
Blacker. Treatment of placenta previa by Champetier de Ribes' bag..	833
Blood collections, pelvic, and their treatment by vaginal incision. Montgomery.....	868
Boise. Operation for umbilical hernia on an infant seven hours old..	223
Bovée. Cyst of the round ligament.....	412
Dermoid cyst of the ovary.....	410
Large ovarian hematoma and double pyosalpinx	284
Papillomatous cyst of the left ovary.....	281
Breast, primary tuberculosis of, occurring during pregnancy. Davis..	851
scirrhus cancer of the. Johnson.....	822
Breech presentation with extended legs. Griffith and Lea.....	574
Brinton. Hemorrhage occurring four hours after delivery.....	135
Bromwell. Meddlesome midwifery.....	124

C

Cancer, papillary, of the body of the uterus. Shoemaker	533, 556
scirrhus, of the breast. Johnson.....	822
Carcinoma, scirrhus, in the scar three years after ventrofixation. McCone	697
Carr. Treatment of acute salpingitis.....	779, 822
Case reports Johnstone	413
Cervix, congenital closure of, with double uterus Hall.....	721
Cesarean hysterectomy. Spencer.....	424
section. Hirst.....	537, 557
section. Powell and Allen.....	392
section. Ross.....	261

	PAGE
Cesarean section, technique of. Hirst	97, 122
sections, two, for dermoid cyst and for flat rachitic pelvis.	
Hirst	790, 817
Chadwick. Historical sketch of abdominal surgery.....	850
Cheney. Management of tumors of the uterus and appendages com- plicating pregnancy	265
Children, skin diseases of. Fox	243
Children's diseases, brief of:	
<i>Abscess</i> , peri-tracheo-laryngeal, 475; adenoids 465, naso-pharyngeal 905; alcohol 752; alcoholism of infants 151; analgen in chorea 304; anemia, splenic, 909; appendicitis 465; arm, bowing of left, 466; ataxia, hereditary, 902; atrophy, progressive muscular, 764; aud- itory disorders 609. <i>Backhaus</i> , milk of, in gastro-enteric diseases 613; bacteria, intestinal, 902; bacteraemia 151; benzine-poisoning 898; bones, defects of long, 611; brain disease, pyogenic, 765, tumor 474; breathing, hysterical, 614; bromoform poisoning 466, 472; bronchitis, fibrinous, 614; broncho-pneumonia 609. <i>Catarrh</i> , naso-pharyngeal, 610; cellulitis, pericranial 763; cerebral injury 752; children, ex- amination of sick, 309; cholera 151; chorea 152, 898, 901; circumci- sion 152; cirrhosis, alcoholic, 466; colon, carcinoma, 898; conjunc- tiva, cyst formation in, 467; convulsions, infantile, 472; coryza and nocturnal cough 305; cough pharyngeal, 159; craniectomy for idiocy 152; creosote in tuberculosis 467; cretin, pregnant 467; cretinism, myxedematous, 158; croup 306, streptococcus, of trachea, 765, tirage in 317; cystotomy, suprapubic, 478; cysts, chylous, 905. <i>Deafness</i> , double, 611; dextrocardia 754; diabetes mellitus 899; diaphragm, spasm, 156; diphtheria, 152, 306, 468, 612, 755, 899; diplegia, congeni- tal cerebral, 466, 898; duodenum, occlusion, 898; dysauxesis, infan- tile, 472; dystrophy, muscular, 313. <i>Earache</i> 900; ear diseases 757; eczema 469; education 752; effusion, pleural, 312; embolism, choreic, 466; empyema 470, 613; encephalitis, diffuse, 757; encephalocele 757; eruptions, scarlatiniform, 621; erythema 472; ether narcosis 470; ex- omphalus 613, 758; exostoses 766; eyes, in child's development 753, absence of outward movement, 611. <i>Feeble-mindedness</i> 900, children 758; femur, resection, 621; fever, glandular 156, 311, 471, scarlet 909, typhoid 320, 767; fibrochondroma, branchial, 470; fistulæ, umbilical 911, with intestinal prolapse 624; flat-foot 470; Friedlaender's bacil- lus 752; Friedreich's disease 758, 902. <i>Glands</i> , tuberculous, 319; glandular fever 156, 311, 471; glioma retinae 614; gonorrhea 471. <i>Habit-chorea</i> 901; heart vessels, transposition, 319; hemiplegia, cerebral, 902; hemophilia 759; hemorrhage, cerebral 156, gastro- intestinal 470, 758, 901; hernia 156, 759, strangulated 910; hip, congenital dislocation 467, luxation 617; hunchback, treatment, 902; hydroencephalocele 902; hygiene, alimentary, 465; hyperpyrexia, continued, 304; hysterical affections 759. <i>Ichthyosis</i> congenita 614; idiocy, cure, 465; inflammations, joint, in meningitis, 910; in- fluenza 157, 613; injections, salt water, 316; insolation 157; intoxi- cation, alcoholic, 151; intestine, intussusception 157, 312, 473, 614, 902, invagination 473, 903; intranasal disease 476; intubation 472, 479, 623, tube 311, 904; iridocyclitis 473. <i>Keratitis</i> 473; kerato- conjunctivitis 907; kidney, tumor of 623, atrophic 752, 902; Klebs- Löffler bacillus in nasal discharges 760. <i>Laryngitis</i> 157; larynx, papillomata 618, stenosis 466; leukemia 903; Little's disease 760; lymph-node swelling 904. <i>Mastoid</i> disease 157, 473, 617, with middle- ear disease 904; maturity, precocious, 764; measles 157, 473; melena neonatorum 760; meningitis 618, with pneumococci 312, tubercular 479, 910; meningo-encephalitis 760; mercyrism 904; middle-ear dis- ease 474; milk, human 471, modified 761; mumps 618, 761; myocar- ditis, parenchymatous, 312; myositis ossificans 905, scarlatinosa 761; myxedema 158. <i>Neck</i> , fistulæ and cysts, 612; neuritis, arsenical, 752; neurosis, traumatic, 479. <i>Occlusion</i> , intestinal 157; ophthal- mia, gonorrheal 759, neonatorum 474 762; opium-poisoning 906; osteomalacia 906; osteomyelitis 618; osteospathyrosis 762; otitis 158, media 610, 763, 907; oxygen in pneumonia 907. <i>Palate</i> , cleft, 753;	

- palsies, cerebral, 466; paralysis, brachial origin 158, obstetrical 905, progressive 907, spastic 765; spinal 759; paraplegia, spastic 902; pelvis, sarcoma, 621; pemphigus vulgaris 763; perineal wound, lacerated, 616; peritonitis with pneumococci 763; pertussis 159, 618, 763; petit mal 312; pleurisy purulent, 314; pneumonia 313, 903, 907; polyneuritis 619; Post-Graduate Babies' Wards 897; posture in development of head 475; Pott's disease 619; prolapsus ani 764; puncture, lumbar, 617; purpura 314, 476, 907. *Rachitis* 314, 907, facies 314; radius, absence, 898; rectum, imperforate 157, occlusion 898, prolapse, procidentia, invagination 619; refraction of eyes 907; ring-worm of scalp 476; roseola 908; r  theln 908; rubeola followed by measles 314. *Santonin* poisoning 908; sarcoma 314; sarcomatosis 314, 765; scarlatina 477, 765, 909; scorbutus 315; septicemia, gastrointestinal, 155; skin-grafting 315; spina bifida 618; stammering 765; status lymphaticus 478; staphylococcus infection 477; stenosis, nasal, 618; stomach, capacity and position 315, dilatation 315, pump 316; streptococcus croup 765, septicemia 478; synovitis, scarlatinal, 909; syphilis, congenital, 467, 765, 766. *Talipes* 766; teeth, congenital 612, filling first 470; teratoma colli 317; tetany 622; thrombosis of sinuses 766; thyroid gland in idiocy 761; thyroïdin 317; ties 478; tissue overgrowth in pharynx 467; tonsil, hypertrophied, 472; torticollis 766; trachea, resection, 318; tracheotomy 318, 479, 623; trephining 319; tube, rectal, 316; tuberculosis 319, 623, hereditary 766, pulmonary 764; tumor, splenic 621, of sacro-coccygeal origin 753; typhlitis 320; typhoid 320, 767. *Urethra*, structure, 910; urethrotomy 320. *Vaccination* 911 and revaccination 320; varicella followed by varicella 320; vitiligo 911; vulvo-vaginitis 320, 911. *Wall*, tracheal, defects, 479; water treatment 466. *X-rays* 479.
- Chorea. Tompkins.....335, 411
- Clark. Review of seventeen hundred cases of abdominal section from the standpoint of intraperitoneal drainage.....481, 650
- Submammary infusions of salt solution in primary anemia from hemorrhage, in shock, and in septic infection....769, 825
- Clark and Skelton. Acetone in eclampsia 196
- Coccyx excised for ununited fracture. Hirst.....794, 817
- Confinement, management of cases during. Cuthbert....229, 285
- Corson. Some clinical jottings on five hundred cases of labor....175, 364
- Cullingworth. Fallopian tubes and ovaries.....577
- Undiminished mortality from puerperal fever in England and Wales 713
- Curettage in dysmenorrhea. Palmer.....416, 562
- Currier. Ventral hernia resulting from abdominal section, and treatment.....847
- Cushing, Sociological aspects of gonorrhea.....869
- Cuthbert. General management of cases during pregnancy and confinement.....229, 285
- Cyst, dermoid, of the ovary. Bov  e 410
- of the round ligament. Bov  e 412
- of the labium removed without rupture. Hirst.....794, 817
- o  phoritic, spontaneous rupture of an. Penrose.....109
- ovarian, with mucoid degeneration. Stone.....412
- papillomatous, of the left ovary. Bov  e.....281
- Cyst-adenoma, a large ovarian. Meriwether.....100
- D
- Da Costa. Pyemia in a young infant.....774, 816
- Davis. Primary tuberculosis of the breast occurring during pregnancy.....851
- Result in the treatment of puerperal sepsis obtained by the use of serum 642, 701
- Delivery, hemorrhage four hours after. Brinton.....135
- De Ribes' bag, placenta previa treated by. Blacker.....833
- Diagnosis and treatment of diseases of the female urinary organs. Skene.....321, 405

	PAGE
Dorland. Gestational complications and dystocia subsequent to anterior fixation of the uterus.....	112
Drainage, intraperitoneal, abdominal section from the standpoint of. Clark.....	481, 650
Dudley. Pathognomonic physical signs of chronic gonorrheal infection in women.....	857
Dysmenorrhea, curettage in. Palmer.....	416, 562
Dystocia subsequent to anterior fixation of the uterus. Dorland.....	112

E

Eclampsia, acetone in. Clark.....	196
etiology of. Jones.....	573
successfully treated with large doses of veratrum viride. Shober.....	788, 816
Ectopic gestation, three cases of, two unruptured, one ruptured. Ross.....	795
Eden. Structure of the ripe placenta, and changes in placenta retained in utero after death of fetus.....	279
Electricity, decrease in size of fibroids after treatment by. Smith.....	271
exophthalmic goitre treated by. Page.....	137
Embryos, early human. Mall.....	275
Emmet (B.) Multiple myomata in the abdominal cavity.....	836
Emmet (T. A.) When to amputate in preference to the usual operation for lacerations of the cervix uteri.....	858
Emphysema, post-operative, of the abdominal wall. Russell.....	517
England and Wales, undiminished mortality from puerperal fever in. Cullingworth.....	713

F

Fallopian tubes, contribution to the pathology of the. Bettmann.....	685
tubes and ovaries. Cullingworth.....	577
Fetal monstrosity. Phillips.....	576
Fetus in a fibroid uterus. Mitchell.....	730
Fibroid, cystic, of the uterus. Hall.....	730
of the uterus with cystic degeneration Hall.....	726
of the uterus, decrease in size of, following treatment by electricity. Smith.....	271
tumor of the uterus, an enormous. Penrose.....	106
tumor of the uterus removed by Baer's method.....	822
Fibroids, suprapubic operation for. Quillian.....	360
Fibroma, soft, of the pelvic cavity distending the perineum. Smith.....	128
Fibromyomata, development of hysterectomy for. Noble.....	838
Fish. Shall we leave the uterus in situ in excision of the adnexa?.....	86
Fox. Lichen ruber and lichen planus.....	73
Various skin diseases of children.....	243
Fry. Manual rectification of faulty head positions.....	345, 413
Puerperal malarial fever.....	1
Uterus, tubes, and ovaries removed for abscesses in both cornua and broad ligament, and salpingitis.....	284

G

Gardner. The diagnosis of early pregnancy.....	54, 136
Garrigues. Secondary operations.....	845
Gestation, ruptured, in an ill-developed right uterine horn. Targett.....	576
Gestational complications and dystocia subsequent to anterior fixation of the uterus. Dorland.....	112
Giles. Cyclical or wave theory of menstruation, with observations on variations in pulse and temperature.....	713
Goffe. Shortening the round ligaments through the anterior vaginal fornix for posterior displacements of the uterus.....	865
Goitre, exophthalmic, treated by electricity. Page.....	137
Gonorrhea, sociological aspects of. Cushing.....	869
Gonorrheal infection, chronic, in women, pathognomonic physical signs of. Dudley.....	857
Griffith and Lea. Breech presentation with extended legs.....	574

H

PAGE

Hall. Abdominal hysterectomy for sarcoma of the body of the uterus, with a small ovarian tumor.	561
Cystic fibroid of the uterus.	730
Double uterus with congenital closure of one cervix; uterus distended with menstrual fluid.	721
Hysterectomy for inflammatory disease of the appendages	562
Large fibroid of the uterus which had undergone cystic degeneration.....	726
Sarcoma of the ovary with intraligamentous ovarian cyst of the opposite side.	560
Vaginal fixation of the round ligament for backward displacements of the uterus.	724
Harrison. Stillbirth.	799, 821
Head, fetal, occipito-dextro-posterior position of the. Stewart ..	541, 714
positions, manual rectification of faulty. Fry ..	345, 413
Hematometra, double, with double uterus and absence of vagina. Lewers	276
large ovarian, and double pyosalpinx. Bovée.....	284
Hemorrhage from premature separation of the placenta. Bennett....	699
occurring four hours after delivery. Brinton.....	135
post-operative, from slipping of ligature after removal of tubes and ovaries. Smith.....	805
Hernia, strangulated, a sequel of ovariectomy. Stokes.....	784
umbilical, operation for, on an infant seven hours old. Boise, ventral, resulting from abdominal section and its treatment. Currier	847
Hirst. Cases of puerperal sepsis in which the antistreptococcic serum was employed.....	625, 701
Cesarean section	537, 557
Coccyx excised for ununited fracture.....	794, 817
Cyst of the labium removed without rupture.....	794, 817
Iniencephalus	540
Operative treatment of a prolapsed ovary.....	536, 557
Septic salpingitis of curious origin.....	539
Technique of Cesarean section.....	97, 122
Two Cesarean sections, one for dermoid cyst, the other for flat rachitic pelvis.....	790, 817
Hobbs. Résumé of the gynecological work done at the London Asylum.....	396
Horn, ruptured, gestation in a. Targett	576
Human embryos, early. Mall.....	275
Hysterectomy, abdominal, for sarcoma of body of uterus, with a small ovarian tumor. Hall.	561
cases of, illustrating the advantages of both the abdominal and vaginal routes. Ashby.....	827
Cesarean. Spencer.....	424
for fibromyomata and for inflammation of the uterine appendages. Noble.....	838
for inflammatory disease of the appendages. Hall.	562
preventing vaginal prolapse following. Baldy.....	81

I

Iliac arteries, ligation of, for recurrence in the cicatrix following hysterectomy. Pryor.....	511
Ill. Pregnancy after double ovariectomy.....	532
Infection, chronic gonorrheal, pathognomonic physical signs of, in women. Dudley	857
of the puerpera. Miller.....	527
Infusions, submammary, of salt solution in primary anemia from hemorrhage, in shock, and in septic infection. Clark.....	769, 825
Iniencephalus. Hirst.....	540
Lewis.....	11
In memoriam Thomas Spencer Wells.....	402

	PAGE
Inspection, necessity for early, of the vagina in puerperal sepsis.	
Norris.....	523, 550
Items.....	768
J	
Johnson. Scirrhus cancer of the breast.....	822
Johnstone. Case reports.....	413
Jones. Etiology of eclampsia.....	573
K	
Kidney, movable, case of. Baldy.....	818
movable, observations concerning. Noble.....	63
L	
Labium, cyst of the, removed without rupture. Hirst.....	794, 817
Labor complicated by ventrofixation, management of. Norris.....	91, 116
some clinical jottings on five hundred cases of. Corson.....	175, 364
Lewers. Double uterus with double hematometra and complete absence of vagina.....	276
Lewis. Iniencephalus.....	11
Lichen ruber and lichen planus. Fox.....	73
Ligament, round, cyst of the. Bovée.....	412
Ligation, transperitoneal simultaneous, of both internal iliac arteries for recurrence in the cicatrix following vaginal hysterectomy for carcinoma uteri. Pryor.....	511
London Asylum, gynecological work done at the. Hobbs.....	396
Lymphangitis, puerperal, serum in treatment of. Baldy.....	645, 701
M	
McClanahan. Treatment of scarlet fever.....	234
McCone. Development of a scirrhus carcinoma in the scar three years after ventrofixation.....	697
Malaria or sepsis in the puerperium. Neff.....	130
Malarial fever, puerperal. Fry.....	1
Malformations, symmetrical. Stern.....	334
Mall. Early human embryos.....	275
Mann. Intra-abdominal shortening of the round ligaments for posterior displacements of the uterus.....	863
Manual rectification of faulty head positions. Fry.....	345, 413
Meddlesome midwifery. Bromwell.....	124
Menstruation, cyclical or wave theory of. Giles.....	713
observations on variations in pulse and temperature in. Giles.....	713
Meriwether. Large ovarian cyst-adenoma.....	100
Midwifery, meddlesome. Bromwell.....	124
Miller. Infection of the puerpera.....	527
Mitchell. Four and a half months' fetus in a fibroid uterus.....	730
Monstrosity, fetal. Phillips.....	576
Montgomery. Pelvic blood collections and their treatment by vaginal incision.....	868
Morris. Preliminary note on a method for the cure of gonorrheal salpingitis.....	684
Movable kidney. Baldy.....	818
Mundé. Perityphlitis and appendicitis in their relations to obstetrics and gynecology.....	852
Murray. Treatment of syphilitic women in pregnancy and parturition.....	856
Myomata, multiple, in the abdominal cavity. Emmet.....	836
N	
Neff. Malaria or sepsis in the puerperium.....	130
Noble. Development and present status of hysterectomy for fibromyomata and for inflammation of the uterine appendages.....	838
Observations concerning movable kidney.....	63
New method of suturing the abdominal wall in celiotomy.....	507, 549

	PAGE
Norris. Case of puerperal sepsis successfully treated with antistreptococcic serum.....	629, 701
Management of labor complicated by ventrofixation.....	91, 116
Necessity for early inspection of the vagina in puerperal sepsis.....	523, 550

O

Obstetrics and gynecology, brief of:

Abortion 585, peritonitis after 435, tubal 586; abscess, ovarian, after confinement 438, pelvic 895, tubo-ovarian, removal, 599; acetanilid gauze 605; acid excretion, sulphuric, of puerperæ, 438; adnexa, bacteriology, 299; after-coming head, forceps, 430; agalactia 590; albuminuria of pregnancy 592; alcohol, disinfectant 442, dressing 442; Alexander's operation 159, 597; amaurosis and amblyopia in pregnancy 875; amenorrhea from sea voyage 456; anastomosis, uretero-ureteral 601, uretero-vesical 441; ante-fixation, labor after, 145; antitoxins in blood after streptococcus 735; appendages, accidents after removal 443, removal sans ligature 443, surgery 599; appendicitis in pregnancy 736; arsenic in vagina, poisoning, 459; ascites of girls 457; atresia uteri 896, vaginæ 594, 607. *Bacillus proteus* Zenkeri in abscess 599; Basedow's disease 883; bicycling, considered gynecologically, 149; bladder, cystoscopic examination 441, dilatation 734, extrophy 441, hairpin in 442, tuberculosis 442; breast, actinomycosis 740, amputation during labor 293, cancer 297, 463, 602, care 462, sarcoma 743; breech presentations 593; broad-ligament cyst 462. *Calculus*, biliary 462, renal 440; cancer of breast 297, 463, 602, cervical 596, etiology 750, of Fallopian tube 751, origin 298, of rectum 750, uterine 452, vaginal 461; carcinoma uteri 297, 740, 748, 750, 891, cervicis 877, 890, recti 892; cardiac disease in pregnancy 588; casts, uterine, 741; catgut, sup-puration from 443, sterilization 148, 165; cervix, adenoma 453, carcinoma 596, 877, 890, laceration 740; Cesarean section 292, 430, 736, 737; chloroform in labor 878; chlorosis 893; chorea in pregnancy 738, 878; colic, biliary, 437; colpohyperplasia cystica 594; conception, prevention, 607; cord, absence 875, injury 738, non-ligation 586; craniotomy 292; cystitis, gonorrheal, 303; cysts, of canal of Nuck 742, dermoid of ovary 748, of hymen 750, intermittent of ovary and kidney, 880, ovarian, infection, 894. *Deaths*, sudden, of puerperæ, 590, 880; deciduoma malignum 295, 438, 739, 892; decubitus after hysterectomy 745; dicephalus tetrabrachius, labor in, 737; dilatation artificial, of parturient canal, 584; dislocations, congenital, 439; douches, vaginal, 594; drainage 890; dressing, antiseptic, 735; dropsy peritonei 602; dysmenorrhea, 603, 743; dystocia 878. *Eclampsia* 146, 433, 588, 593, 736, 874; ectopic gestation 146, 431, 583, 587, 733, 735, 876 ectropion cervicis 596; electricity 604; electro-cautery as hemostatic 741; elevation, pelvic, 148; embolism, air 590, fatal pulmonary 149; emphysema after laparotomy 461; endometritis, gonorrheal 734, hyperplastic 295, senile 883; endometrium 743; epilepsy in pregnancy 878; ergot, in labor 735, in pregnancy 737; erysipelas inoculations 749; evolution, spontaneous, 143; exploratory abdominal section 148; extract, ovarian, 445. *Face* into occiput position, change, 144, presentations 144; Fallopian tube, cancer 751, twin pregnancy 432; fetus, retention, 439; fibroid, cervical, with labor, 146, of Fallopian tube 444, in pregnancy 585, 588, 735, uterine 146, 293, 296, 453, 596, 741, 894; fibroma of presacral region 462; fistula, intestinal 461, vesico-vaginal 601, 745; forceps deliveries in Tübingen 585, high 737, use 585; fractures, intrauterine, 439. *Generative organs*, female, 583, 895; genitals, examination, 604; goitre, exophthalmic, 734; gonorrhea 303, 458, 603, 886; gonorrheal cystitis, 303; gout of menopause 606; growths, deciduoma-like, in pregnancy, 592. *Hands*, disinfection, 605; hematocele 607, 744; hematoma, pelvic, 602; hematosalpinx in double genitals 888; hemianopsia in puerperal amaurosis 437; hemoglobin in pregnancy 739; hemorrhage, accidental 588, into spinal canal 876, post-partum 435, shock, sepsis, differential diagnosis 149, from uterine inertia 290; her-

maphroditism 605, 750; hernia, ovarian 748, umbilical 461, 875, vaginal and pudendal 461; horn, pregnancy in, 144; hydatids in peritoneum 602; hydrocephalus 736; hydronephrosis 303; hydrorrhea, peritoneal, 456; hymen, cysts 750, occlusion in pregnancy 144, unyielding 144; hyperemesis gravidarum 893; hysterectomy 744, abdominal 455, for retroflexion 585, vaginal 454, 455, 890, 891; hysteria in pregnancy 878; hysteropexy, pregnancy after, 735. *Ichthyol* 893; incision, abdominal 147, vaginal 744; infection, of ovarian cysts 894, puerperal 589, 738; inflammation pelvic, 459, 602; inguinal hernia containing tube 433; injections, post-partum intrauterine 878, saline 742, 879; insanity, post-operative, 461; intoxications causing puerperal infection 436; intrauterine therapy 296; inversio uteri 589; iodoform dressings 743. *Keratitis*, obstetrical, 295; kidney, movable, 440; kraurosis vulvæ 461. *Labor* 430, antiseptic 592, dry 584, and dysmenorrhea 741, painless 878, premature 738; laparotomy, complicated 461, changes after 457; leg, intrauterine fracture 293; ligament, round, fibroid and dermoid cyst of, 892; ligatures, in abdominal surgery 607, untying 604; liver, cancer, 602. *Mamma*, cystic tumors, 603; marriage with unsound pelvic organs 428; masturbation 301; maternity, precocious, 736; menstruation, biological basis of 747, uterine membrane in 456; metritis 741; metrorrhagia after menopause 456; milk, human, bacteria in 739; monstrosities 293, 439, 738; Murphy's button 886; myoma uteri, sloughing, 879; myomectomies, vaginal, 297; myotomy, ligature in 454; myxoma labium majus 593. *Nephritis* in pregnancy 588; nephro-ureterectomy 601; nervous disorders 605; neuritis, following delivery 437, puerperal 590. *Obesity* causing sterility 603; obstetrics, among aborigines 584, anesthesia 430, antiseptics and asepsis 429, 584, teaching 293; operations, abdominal, 599; ophthalmia neonatorum 439; osteomalacia, anatomy of ovaries in, 886; ovarian fluid 598, tumors 293; ovary 299, 444, absence 445, dermoid cysts 892, hyperemia 446, influence in pregnancy 429, internal secretion 445, location and ligaments 300, removal for insanity 599, resection and ignipuncture 746, tuberculosis 301; ovariectomy, anesthesia 445, during pregnancy 293, in ovarian tumors 748; ovum, dead, retained in utero, 291, retained four years 737. *Palpation*, abdominal, 142; paralysis, obstetrical, 439, 587, 733; paraplegia in puerperium 880; paravaginal operation 295; parotiditis after celiotomy 149; parovarian cyst 301; pathological examination during operation 606; pedicle, retroperitoneal treatment, 454; pelvic collections 456, disease, prevention, 459, pains 601; pelvis, contracted 294, 585, flat rachitic 585; peritonitis 456, 602, 743; peritoneum 607; perivaginitis, dissecting, 594; pessary, retention, 458; placenta 145, 582, 583, 874, 875, previa 147, 290, 430; pleuritic effusion at birth 878; polymastia 602; polypi, uterine, 453; Porro 591; prediagnostic treatment 884; pregnancy, cancer of cervix in 890, early diagnosis 143, hysteria, epilepsy, chorea 878, multiple 583, with ovarian cyst 734; Preston Retreat report 735; prolapse, pathology 296, of genitals 450, 597; pruritus gravidarum 893; puerperal infection, intoxications causing, 436; puerperium, sudden death 880; pyosalpinx 444, 895. *Retrodisplacements* uteri 150; retroflexion 893; rectum, cancer 892, death from tear 464, prolapse 597; rupture, after laparotomy 886, of recto-vaginal partition 878, of uterus 290, 873. *Salpingitis* 298, 600; salpingo-oöphoritis and appendicitis 608; sarcoma deciduo-cellulare 750; sciatica from compression 735; sclerosis, infantile 439, of uterine arteries 751; section, abdominal 455, vaginal 895, vaginal versus abdominal 460; senecio 301, 456; serotina, giant cells, 738; sepsis, puerperal 291, 437, 879, shock, hemorrhage, differential diagnosis 149; serum treatment 458; sexual organs and respiratory passages 459; shock, sepsis, hemorrhage, differential diagnosis 149; silk, non-draining, 149; sound, uterine, 742; stems, intrauterine, 452; statistics, obstetrical, 584; streptococci in parturient vagina 291; subinvolutio uteri 290; superfetation 734; suppuration, pelvic, 460; suprarenal capsule, aberrant, 602; surgery,

abdominal, 605; suture, buried 443, materials 749; symphyseotomy 292, 430, 591; syphilis 458, by conception 438, causing abortion 438. <i>Temperature</i> , peculiar, 590; tetanus neonatorum 439; therapy, intra-uterine, 597; thirst after operation 605; thoracic duct, cancer, 298; thyroid therapy 603, 883; tuberculosis, hereditary 458, laryngeal 735, mammary 463; tumors, of cecum and appendages 602, endo-thelial ovarian 300, ovarian 444, 598, 743, phantom 607; twin preg-nancy 143, 586; tympanites uteri 291. <i>Urethra</i> , restoration, 441; ureter, double 441, 597, injury 441, 601; urine, method of obtaining 440; uterine tissue, examination, 452 743; uterus absence 461, 608, atrophy 886, axis torsion 874, curetting, digital, 588, didelphys 741, 874, deflection and rotation of pregnant 588, deformities, congenital, 301, displacements 740, 742, double 291, 597, fatty degeneration 429, imperforate 741, inertia 430, inflammations 594, prolapse 739, re-moval with papilloma ovarii 592, removal in septic pelvic disease 889, retrodisplacements 447, retroversion 595, rupture 435, 590, 733, septus, pregnancy, 145, superinvolution 596, total extirpation 891. <i>Vagina</i> , absence 301, 461, 608, atrophy 462, deformities 301, double 145, 597, foreign bodies in 751, laceration in coitus 594; vaginal route 460, 604; vaginismus 461, gravidarum 893; varicocele, utero-ovarian, 601; ventrosuspensio uteri 597; version in contracted pelvis 737; viburnum 301; vomiting, reflex, 740; vulva, atresia 301, hemor-rhage from wound 463; vulvo-vaginitis of little girls 463. <i>Women</i> , diseases of, 604; wound, closure of abdominal, 896.	
Occipito-dextro-posterior position of the fetal head. Stewart..	541, 714
posterior positions, factors concerned in causing ultimate rota-tion in. Wilson ..	255
Omentum, cystic degeneration of the. Stone.....	281
Oöphoritic cyst, spontaneous rupture of an. Penrose.....	109
Operations, secondary. Garrigues.....	845
Ovarian cyst with mucoid degeneration. Stone	412
cyst-adenoma, a large Meriwether.	100
Ovaries and Fallopian tubes Cullingworth	577
Ovariectomy, pregnancy after double Ill	532
strangulated hernia a sequel of. Stokes	784
Ovary, dermoid cyst of the. Bovée.....	410
prolapsed, operative treatment of a. Hirst.....	536, 557
sarcoma of the, with intraligamentous ovarian cyst of the opposite side. Hall.....	560

P

Page. Exophthalmic goitre treated by electricity.....	137
Palmer. Curettagé in dysmenorrhea	416
Papillomatous cyst of left ovary. Bovée.....	281
Pelvis, treatment of pus in the. Sellman	813, 827
Penrose. Enormous fibroid tumor of the uterus	106
Spontaneous rupture of an oöphoritic cyst	109
Perineum distended by soft fibroma of pelvic cavity. Smith	128
Perityphlitis and appendicitis in their relations to obstetrics and gyne-cology. Mundé.....	852
Phillips. Fetal monstrosity.....	576
Phlebitis, puerperal, serum in treatment of. Baldy	645, 701
Placenta, hemorrhage from premature separation of. Bennett	699
previa, treatment of, by Champetier de Ribes' bag. Blacker, ...	833
structure of the ripe, and changes in placenta retained in utero after death of fetus. Eden.....	279
Post-operative emphysema of the abdominal wall. Russell.....	517
Powell and Allen. Cesarean section.....	392
Pregnancy after double ovariectomy. Ill.....	532
diagnosis of early. Gardner.....	54, 136
complicated by appendicitis. Abrahams.....	205
management of cases during. Cuthbert.....	229, 285
Prolapse, vaginal, after hysterectomy, method of preventing. Baldy..	81

	PAGE
Prolapsus uteri, congenital. Ballantyne.....	161
Pryor. Transperitoneal simultaneous ligation of both internal iliac arteries for recurrence in the cicatrix following vaginal hysterectomy for carcinoma uteri.....	511
Puerpera, infection of the. Miller	527
Puerperal fever, antistreptococcic serum in treatment of.....625-647,	701
fever, undiminished mortality from, in England and Wales.	
Cullingworth.....	713
malarial fever. Fry.....	1
Puerperium, malaria or sepsis in the. Neff.....	130
Pus in the pelvis, treatment of. Sellman.....	813, 827
Pyemia in a young infant. Da Costa.....	774, 816
Pyosalpinx, double, and large ovarian hematoma. Bovée.....	284

Q

Quillian. Suprapubic operation for fibroids.....	360
--	-----

R

Retroversion of the uterus, results of one hundred and forty-seven operations for. Smith.....	862
Reviews. Anatomical Atlas of Obstetric Diagnosis and Treatment.	
Schaeffer.....	141
Anatomy of Labor exhibited in Foreign Sections. Barbour,	581
Atlas and Essentials of Gynecology. Schaeffer.....	872
Atlas of the Normal and Pathological Nervous Systems.	
Jakob	141
Atlas of Ophthalmoscopy. Haab	141
Diseases of Infancy and Childhood. Holt.....	578
Diseases of the Male Urethra. Stewart.....	289
Diseases of the Stomach. Einhorn	289
Femmes en Couches et Nouveau-Nés—Parturient Women and New-born Infants. Budin.....	427
Functional Disorders of the Nervous System in Women.	
McGillicuddy.....	288
Guide to the Clinical Examination of the Blood for Diagnostic Purposes. Cabot.....	428
Handbuch der Gynäkologie. Veit.....	730
Lectures on the Treatment of Uterine Fibroids. Martin...	873
Lehrbuch für Hebammen. Leopold and Zweifel.....	579
Manuel Théorique et Pratique d'Accouchements. Pozzi....	580
Revue de Gynécologie et de Chirurgie Abdominale. Pozzi,	732
Traité des Malades de l'Enfance. Grancher, Comby, and Marfan	872
Transactions of the American Association of Obstetricians and Gynecologists. vol. ix.....	873
Traitement de l'Avortement Incomplet. Chaleix-Vivie et Audebert.....	140
Transactions of the American Gynecological Society, vol. xxi.	142
Treatise on Obstetrics for Students and Practitioners.	
Davis.....	140
Twentieth Century Practice. Stedman.....	580, 793
Year Book of Treatment for 1897.....	581
Reynolds. Preliminary report on a new method of vaginal fixation ..	864
Ross. Cesarean section.....	261
Three cases of ectopic gestation, two unruptured, one ruptured,	795
Rotation in occipito-posterior positions, factors concerned in causing.	
Wilson	255
Round ligament, cyst of. Bovée.	412
ligament, vaginal fixation of, for backward displacements of the uterus. Hall.....	724

	PAGE
Round ligaments, intra-abdominal shortening of, for posterior displacements of the uterus. Mann.....	863
ligaments, shortening the, through the anterior vaginal fornix, for posterior displacements of the uterus. Goffe.....	865
Russell. Post-operative emphysema of the abdominal wall.....	517
S	
Salpingitis, acute, treatment of. Carr	779, 822
gonorrheal, preliminary note on a method for the cure of. Morris.....	684
septic, of curious origin. Hirst.....	539
Salt solution, submammary infusions of, in primary anemia from hemorrhage, in shock, and in septic infection. Clark.....	769, 825
Sarcoma of the ovary with intraligamentous cyst of the opposite side. Hall.....	560
Scarlet fever, treatment of. McClanahan.....	234
Secondary operations. Garrigues.....	845
Section, abdominal, ventral hernia resulting from, and its treatment. Currier.....	847
Sellman. Treatment of pus in the pelvis.....	813, 827
Sepsis or malaria in the puerperium. Neff.....	130
uterus and adnexa removed for. Stone	410
Septicemia from self-induced abortion. Shoemaker.....	637, 701
Serum, antistreptococcic, puerperal fever treated with. Shoher...647, 701	
antistreptococcic, puerperal sepsis treated with. Davis...642, 701	
antistreptococcic, puerperal sepsis treated with. Hirst...625, 701	
antistreptococcic, puerperal sepsis treated with. Norris...629, 701	
antistreptococcic, in the treatment of acute puerperal lymphangitis and phlebitis. Baldy.....	645, 701
Shoher. Eclampsia successfully treated with large doses of veratrum viride	788, 816
Puerperal fever treated with antistreptococcic serum....647, 701	
Shoemaker. Papillary cancer of the body of the uterus.....	533, 556
Septicemia from self-induced abortion.....	637, 701
Skene. Diagnosis and treatment of diseases of the female urinary organs.....	321, 405
Skin diseases of children. Fox	243
Smith (A. L.). Post-operative hemorrhage from slipping of the ligature after removal of diseased tubes and ovaries...805	
Rapid decrease in size of a fibroid of the uterus following treatment by electricity.....	271
Results of one hundred and forty seven operations for retroversion of the uterus.....	862
Smith (T. C.). Soft fibroma of the pelvic cavity distending the perineum.....	128
Spencer. Cesarean hysterectomy.....	424
Spine, cleft, with unusual visceral malformation in an anencephalic fetus Stevens.....	279
Stern. Symmetrical malformations.....	334
Stevens. Completely cleft spine with unusual visceral malformation in an anencephalic fetus.....	279
Stewart. Occipito-dextro-posterior position of the fetal head.....	541, 714
Stillbirth. Harrison.....	799, 821
Stokes. Strangulated hernia a sequel of ovariectomy.....	784
Stone. Cystic degeneration of the omentum.....	281
Distended appendix.....	412
Fibroid tumor of the uterus removed by Baer's method	822
Ovarian cyst with mucoid degeneration	412
Uterus and adnexa removed for sepsis.....	410
Suprapubic operation for fibroids. Quillian.....	360
Surgery, abdominal, historical sketch of. Chadwick.....	850
Suturing the abdominal wall in celiotomy, new method of. Noble.....	507, 549
Syphilitic women, treatment of, in pregnancy and parturition. Murray.....	856

T

- Targett. Ruptured gestation in an ill-developed right uterine horn... 576
 Tompkins. Chorea 335, 411
 Tuberculosis of breast, primary, occurring during pregnancy. Davis.. 851
 Tubes, Fallopian, contribution to the pathology of Bettmann..... 685
 Tumors of the uterus and appendages complicating pregnancy. Cheney 265

U

- Umbilical hernia, operation for, on an infant seven hours old. Boise.. 223
 Uremia, venesection and saline infusion in. Van Rensselaer..... 224, 282
 Urinary organs, female, diagnosis and treatment of diseases of. Skene, 321, 405
 Uteri, congenital prolapsus. Ballantyne..... 161
 Uterus, abdominal hysterectomy for body of. Hall..... 561
 and adnexa removed for sepsis. Stone..... 410
 cystic fibroid of the. Hall..... 730
 double, double hematometra, and complete absence of vagina
 Lewers..... 276
 double, with congenital closure of one cervix; uterus distended
 with menstrual fluid. Hall..... 721
 enormous fibroid of. Penrose..... 106
 fibroid of the, with cystic degeneration. Hall..... 726
 fibroid tumor of, removal by Baer's method..... 822
 in situ, leaving the, in excision of the adnexa. Fish..... 86
 management of tumors of, complicating pregnancy. Cheney. 265
 papillary cancer of body of. Shoemaker..... 533, 556
 results of one hundred and forty seven operations for retro-
 version of. Smith..... 862
 tubes, and ovaries removed for abscesses in both cornua and
 broad ligament, and salpingitis. Fry..... 284

V

- Vagina, absence of, with double uterus and double hematometra.
 Lewers 276
 early inspection of the, in puerperal sepsis. Norris..... 523, 550
 Vaginal fixation of the round ligament for backward displacements of
 the uterus. Hall..... 724
 fixation, preliminary report on a new method of. Reynolds.. 864
 Van Rensselaer. Venesection and saline infusion in uremia..... 224, 282
 Venesection and saline infusion in uremia. Van Rensselaer..... 224, 282
 Ventrofixation, carcinoma in scar after. McCone 697
 management of labor complicated by. Norris..... 91, 116
 Veratrum viride, eclampsia treated by large doses of. Shoher.... 788, 816

W

- Wall, abdominal, new method of suturing, in celiotomy. Noble .. 507, 549
 Wells, Thomas Spencer, in memoriam..... 402
 Wilson. Factors concerned in causing ultimate rotation in occipito-
 posterior positions..... 255



LICHEN RUBER
(*Pityriasis rubra pilaris*)

This is the collection of photographs of Dr. J. J. ...

AMER. JOUR. OF GYN. & OBSTET.
 Vol. 10, No. 1, 1901
 P. 100
 TUBERCLE IN WOMEN AND CHILDREN
 February, 1901



PHOTOGRAPH BY DR. J. H. COLEMAN

SYPHILIS HEREDITARIA

Dr. George Henry Lee

A LIFE OF JOHN W. DOUGLASS
BY
CHARLES W. WELLS AND FREDERICK
W. WELLS



JOHN WELLS, MARY

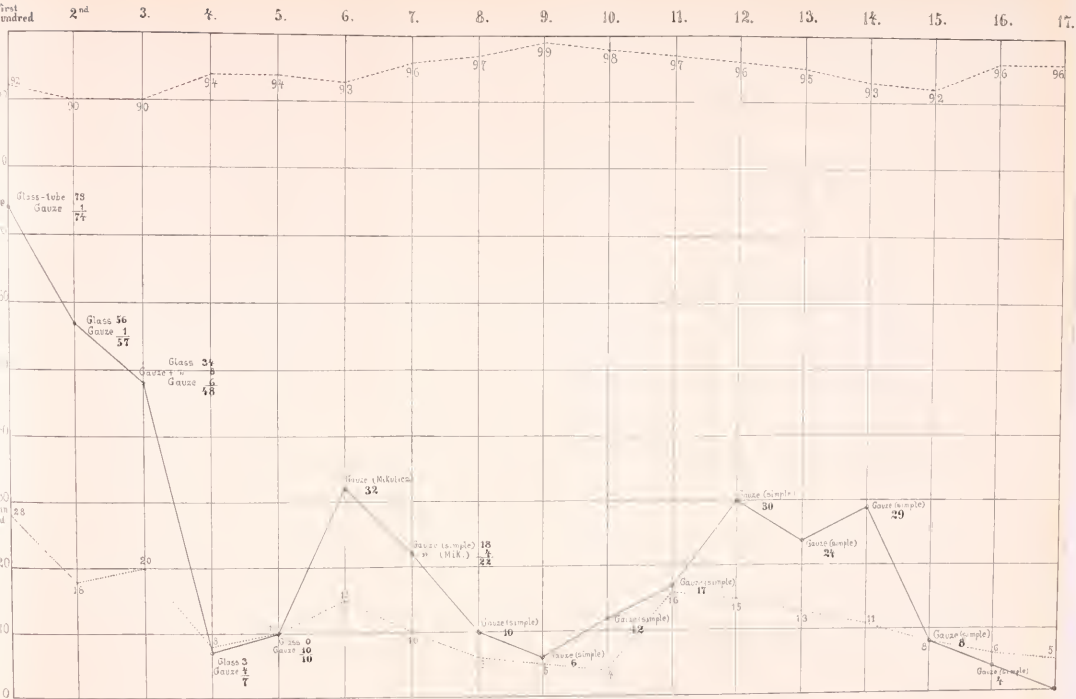
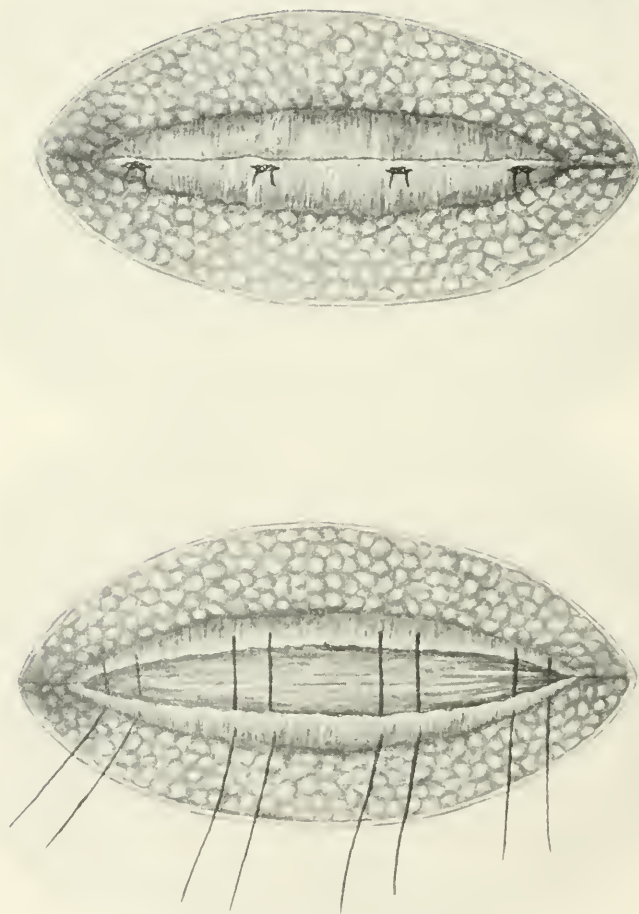


CHART DRAWN FROM SEVENTEEN HUNDRED CASES OF ABDOMINAL SECTION

The upper coarsely dotted line represents the percentage of recoveries, the middle heavy black line the percentage of drainage cases, and the lower line the percentage of local suppuration of the abdominal wound. The uniform way in which the percentage of deaths and of local suppuration increases as the drainage line rises and decreases as it falls is extremely suggestive, and unquestionably a strong argument against the extensive employment of the drain. In draughting this chart *avant tout* has been made to select cases, but all abdominal sections, in the order of their occurrence, have been included. By exclusion of exploratory section cases, and some of the cases in which a fatal termination was evident at the time of operation, the chart could have been made a still more graphic objection to drainage.



A NEW METHOD OF CLOSING THE ABDOMINAL WOUND. (NOBLE)

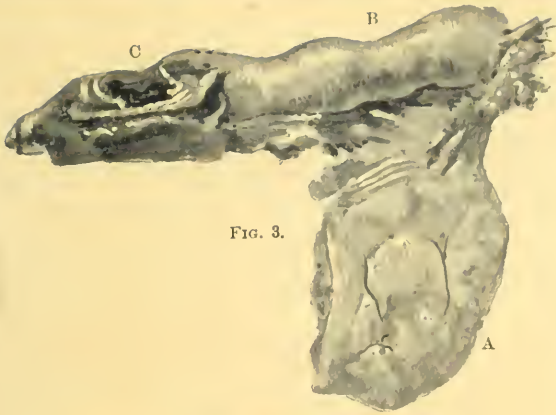


FIG. 3.

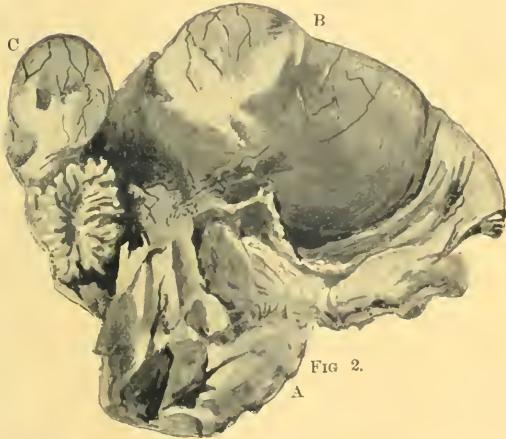


FIG. 2.

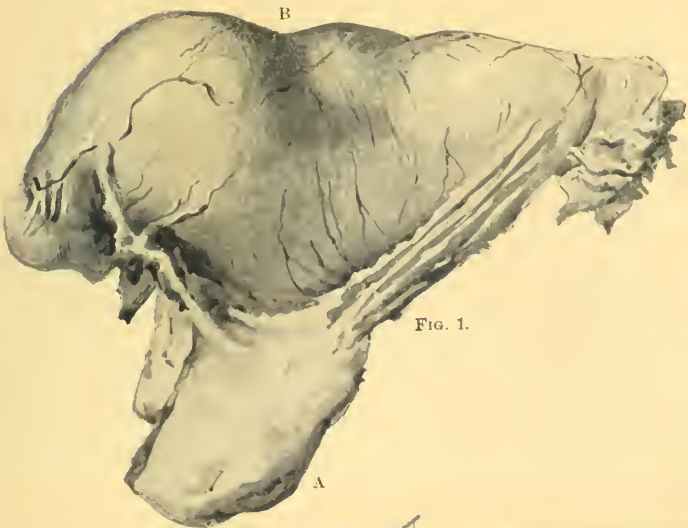


FIG. 1.

(15)

665-4

RG
l
A57
v.35

The American journal of
obstetrics and diseases
of women and children

BioMed
ser

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY
